

Health Sciences

4320A



# HUMAN EMBRYOLOGY, DEVELOPMENT AND DISEASE

Course Instructor: Daniel Belliveau, Ph.D.

School of Health Studies  
Faculty of Health Sciences

2011

## HS 4320A

### Human Embryology, Development and Disease

*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.*

*September to December, 2011*

## COURSE OUTLINE

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This course will study the development of the human from fertilization through to parturition. Clinical implications of congenital anomalies and developmental disorders will be discussed from a morphological perspective. An understanding of the origin of various tissues and organs will provide the student a better understanding of the normal anatomy of the adult human.

There are 3 lecture hours per week. (**Monday, 9:30 am – 11:30 am and Wednesday, 9:30 am – 10:30 am; Health Sciences Building – room 35**). The course will investigate human development from multiple perspectives and students will be evaluated by examinations consisting of multiple choice and short answer questions. Groups of students will work together to develop a health prospectus on a developmental disorder to gain a greater understanding of such conditions. In class and on-line discussions will elaborate upon lecture material.

## COURSE OBJECTIVE

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The purpose of this course is to provide the student with an advanced understanding of the key phenomena that occur during human developmental and the potential consequences that result due to anomalous developmental events.

Following completion of this course, students will be able to

- Describe key events during all stages of human development
- Illustrate the significance of coordinated development by offering examples of congenital and abnormal developmental occurrences
- Distinguish between the various stages of normal development or root causes of abnormal development
- Create a summary of relevant developmental events and related abnormal sequelae for use by non-experts

# COURSE ADMINISTRATION

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## INSTRUCTOR

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

## OFFICE HOURS

Monday, Tuesday, Wednesday 1:30 – 3:30 OR by appointment

Due to the nature of research, 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:** <http://webct.uwo.ca>, Log onto WebCT 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 WebCT OWL.

## EXAMINATIONS

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Exams will consist of multiple-choice questions including standard and k-type questions (multiple-multiple) 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 and discussion points.

<b>GRADING:</b>	Midterm exam <b>October 5<sup>th</sup>, 2011</b> (in class)	<b>20%</b>	Standard five-item Multiple choice style exam comprised of 50 questions. Some questions will be based on images.
	Final Exam (cumulative) <b>December exam period</b>	<b>35%</b>	Exam will be comprised of standard and K-type multiple choice questions, images and some short answer questions.
	Health Prospectus	<b>25%</b>	A group of four students create a brochure or

	Assignment Due: <b>October 19<sup>th</sup>, 2011</b>		poster describing a clinical condition, its normal and abnormal development and potential resources for clients to explore (see assignment section for more details).
	Pre-lecture reviews	<b>10%</b>	A series of animations offered from the textbook resources or online will be reviewed and questions answered on WebCT prior to the pertinent class.
	Discussion Board	<b>10%</b>	Problems will be assigned for discussion and review. Four problems will be assigned during the course. These problems will be presented in WebCt and discussed through the discussion board in WebCT. Discussions will be moderated by the instructor and marks assigned for participation and thoughtful considerations of the issue.

### 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 the course instructor. ***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.***

Pre-lecture reviews are exactly that and cannot be made up if missed.

### 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

## HEALTH PROSPECTUS ASSIGNMENT

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A complete description (including grading rubric) can be found under the assignment tab on WebCT. This is a group assignment of 4 students working together to create a brochure or poster for the dissemination of information (both normal development and abnormal development) targeted towards a non-expert audience. The assignment is worth 25% of the final course grade. The following timelines are critical for the success of the assignment:

- September 28, 2011      Establish groups and identify the topic area

- October 19, 2011                      Assignment is due, submitted to WebCT by end of day
- Various                                      Each group will present their assignment in class – date selected by instructor based on course material coverage

There will be a **late penalty of 1% of the grade per hour** after the due date (11:59 PM, October 19, 2011) based upon the electronic time stamp. No assignments will be accepted at the School of Health Studies office.

## 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. There is absolutely no need to tweet or post on facebook during class, nor check/send e-mail. I welcome the use of computers to take notes. I ***do not condone*** their use for surfing the web, chatting on MSN or other non-academic use while in class. 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**

Sadler, T.W. Langman's Medical Embryology (11<sup>th</sup> ed.) Lippincott Williams & Wilkins: Baltimore, MD. 2010.

**YOU ARE NOT REQUIRED TO KNOW ALL THE DETAILS IN THE TEXT. USE THE TEXT AS A REFERENCE AND REVIEW GUIDE. CONCENTRATE ON THE MATERIAL PERTAINING TO THE LECTURES AND WEB POSTINGS, UNLESS OTHERWISE SPECIFIED (e.g. A SECTION WITHIN A CHAPTER MAY BE ASSIGNED FOR READING). MANY OF THE DIAGRAMS USED IN CLASS ARE FROM THE TEXT, SO IT WILL BE A VALUABLE TOOL. THE QUESTIONS AT THE END OF EACH CHAPTER IN THE TEXT, ARE A GOOD EXAMPLE OF THE TYPE OF MULTIPLE CHOICE QUESTIONS TO EXPECT ON THE MIDTERMS AND FINAL.**

# 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/>

# ***Health Sciences 4320A***

*Human Embryology, Development and Disease*

## ***Course Schedule – Fall 2011***

***Classes: Monday 9:30 – 11:30 and Wednesday 9:30 – 10:30***  
*Health Sciences Building, room 35*

### ***The Basics of Human Development***

September 12, 2011	Chapter 2	Course introduction, embryology, gametogenesis
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### ***Early Development***

September 14, 2011	Chapter 3	First week of development
September 17, 2011	Chapter 4, 5	Second and third week of development

### ***Embryonic Period***

September 21, 2011	Chapter 6	Third to eighth week of development
September 26, 2011		Derivation of germ layers

### ***Fetal Period***

September 28, 2011	Chapter 7, 8	Placentation, fetal membranes, fetal development
October 3, 2011		Parturition, birth defects, diagnostic therapies

**October 5, 2011**

**Midterm exam (in class)**  
**All lectures up to and including October 3, 2011**

### ***Organogenesis***

October 12, 2011	Chapter 17	Nervous system development
October 17, 2011		

October 19, 2011	Chapter 12	Cardiovascular development
October 24, 2011		

2 groups

October 26, 2011		Group presentations
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3 groups

October 31, 2011	TBD	Organ system 3
November 2, 2011		

2 groups

2 groups

November 7, 2011	TBD	Organ system 4	2 groups
November 9, 2011			2 groups
November 14, 2011	TBD	Organ system 5	2 groups
November 16, 2011		Group presentations	3 groups
November 21, 2011	TBD	Organ system 5 (cont.)	2 groups
November 23, 2011	TBD	Organ system 6	2 groups
November 28, 2011			2 groups
November 30, 2011		Group presentations	3 groups
December 5, 2011	TBD	Organ system 7	
December 7, 2011		Course review	

**December exam period**

**Final exam (cumulative exam)**

- Group presentation dates will be determined by the instructor
- Organ systems 3-7 will be decided upon by the class by popular vote through WebCT. The systems will then be delivered in an order based upon greatest popularity. The following systems will be considered:
  - Skeletal
  - Muscular
  - Body cavities
  - Respiratory
  - Digestive
  - Urogenital
  - Head and neck
  - Special senses (ear/eye)