Health Sciences

4320A

HUMAN EMBRYOLOGY, DEVELOPMENT AND DISEASE

Course Instructor: Daniel Belliveau, Ph.D.

School of Health Studies
Faculty of Health Sciences

2016

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.

January – April, 2016

COURSE OUTLINE

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; Spencer Engineering Building – room 1059**). 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 OBJECTIVES

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

INSTRUCTOR
Dr. Dan Belliveau
Health Sciences Building, room 220
Ext. 88235

OFFICE HOURS
Monday 2:00 – 4:00 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). Some external email services may encounter SPAM blocking or filtering. It is essential that you use your UWO account, otherwise, important and timely information may not get to you if you are using another email service.

Web site address: https://owl.uwo.ca/portal, Log onto 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.

DEVELOPMENT TEAMS

Various aspects of the course will be done as teams, mostly of four students. These teams have been pre-arranged and will remain constant for the duration of the course. While there are pros and cons to having pre-arranged teams versus self-selected teams, it is my belief that you cannot always control the members of your team in the working world. This exercise encourages everyone to work on improving inter-personal communication skills, increase responsibility and reduce social loafing. In general, students who are assigned to pre-arranged teams are better prepared to participate in substantive discussions with other group members during assessments, including being able to provide immediate feedback to their team members.

EXAMINATIONS

Exams will consist of multiple-choice questions including standard and k-type questions (multiple-multiple) as well as short-answer/case study 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.

GRADING:	Midterm exam **February 9, 2016** (in class)	**20%**	Standard five-item multiple-choice style exam comprised of 40 questions and short answer/case study questions.
	Final Exam (cumulative) **April exam period**	**40%**	Exam will be comprised of standard and K-type multiple-choice questions, images and short answer questions and case studies.
	Infographic Assignment Due: **March 23, 2016** (Some components due **earlier**)	**30%**	Teams of students will collaborate to create an infographic describing a clinical condition, its normal and abnormal development and potential resources for clients to explore (see assignment section for more details).
	Lecture review quizzes (various dates)	**10%**	An evaluation of understanding of material learned during various sections of the course. Quizzes are completed in class and done in development teams.

MAKE-UP EXAMINATIONS

Only under exceptional circumstances will permission be granted for writing an exam on an alternate date. You must contact me, your course instructor, if you missed an exam. 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 advise the course instructor of their support for accommodation. ***If approved, written makeup examinations will consist of short and long answer questions, case studies and image-based questions based on material from lectures.***

In-class review exercises cannot be made up if missed.

COLLABORATIVE TESTING

During the official course assessments (midterm exam and final), a portion of the evaluation will be derived from collaborative tests. This portion of the examination allows students to work together in their development teams to answer the exam questions. The collaborative testing portion of the exam will make up 15% of the exam grade and will be included only if it benefits the individual student. That is, if your grade as an individual is higher than your collaborative testing grade, then your mark will be made up exclusively on your own work. Past experience indicates that this occurs very infrequently so I do anticipate that the collaborative testing approach will benefit a great number of the students in the course.

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.

INFOGRAPHIC ASSIGNMENT

A complete description (including grading rubric) can be found under the assignment tab on OWL. This is a group assignment by students teams working to create a resource for the dissemination of information (both normal development and abnormal development) targeted towards a non-expert audience. The assignment is worth 30% of the final course grade.

Supplementing the infographic will be a short, two-page editorial comment on the graphic explaining the anomaly/condition and offering a space to elaborate on the disorder in more scientific terms. Details will be available on the assignments tab.

The following timelines are critical to the success of the assignment:

▪ February 10, 2016	Identify the topic area	0 %
▪ March 9, 2016	Annotated bibliography	5 %
▪ March 23, 2016	Infographic is due, submitted to OWL by end of day	15 %
	Editorial is due, submitted to OWL by end of day	10 %
		30 %

There will be a **late penalty of 1% of the grade per hour** after the due date based upon the electronic time stamp assigned in OWL. No assignments will be accepted at the School of Health Studies office.

EXPECTATIONS

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 social media 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

Recommended Textbook

Moore, K.L., T.V.N. Persuad and M.G. Torchia. The Developing Human: Clinically Oriented Embryology; 10th Edition. Elsevier Saunders: Philadelphia, PA. 2016.

Moore, K.L., T.V.N. Persuad and M.G. Torchia. The Developing Human: Clinically Oriented Embryology; 9th Edition. Elsevier Saunders: Philadelphia, PA. 2013.

Text used in prior offerings of course:
Sadler, T.W. Langman's Medical Embryology (11th 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

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 PROFICENCY 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

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

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 4320B

Human Embryology, Development and Disease

Course Schedule – Winter 2016

Classes: Monday 9:30 – 11:30 and Wednesday 9:30 – 10:30
Spencer Engineering Building, ***room 1059***

The Basics of Human Development			
January 4, 2016		Course introduction	
	Chapter 1	Developmental periods, descriptive terms	
	Chapter 2	Gametogenesis	
Early Development			
January 6, 2016	Chapter 2	First week of development	
January 11, 2016	Chapter 3, 4	Second and third week of development	Quiz 1
January 13, 2016			
Embryonic Period			
January 18, 2016	Chapter 5	Fourth to eighth week of development	Quiz 2
January 20, 2016		Derivation of germ layers	
		Embryonic age	
Fetal Period			
January 25, 2016	Chapter 6	Fetal development (ninth week to birth)	Quiz 3
January 27, 2016	Chapter 7	Placenta and fetal membranes	
		Parturition	
February 1, 2016	Chapter 20	Human birth defects	Quiz 4
Organogenesis			
February 3, 2016	Chapter 8	Body cavities	
February 8, 2016	**Midterm exam (in class)** **All lectures up to and including February 1, 2016**		
February 10, 2016	**Due date to choose *Infographic topic*** **(11:59 PM via Google Docs)**		

February 10, 2016	Chapter 10	Respiratory system development	
READING WEEK February 15 – 19, 2016			
February 22, 2016	Chapter 11	Digestive system development	
February 24, 2016	Chapter 11	Digestive system development (continued)	
February 29, 2016	Chapter 12	Urogenital system development	Quiz 5
March 2, 2016 March 7, 2016 March 9, 2016	Chapter 13	Cardiovascular system development Pharyngeal arch arteries Fetal and neonatal circulation	 Quiz 6
March 9, 2016	**Annotated Bibliography for INFOGRAPHIC ASSIGNMENT (11:59 PM via OWL)**		
INFOGRAPHIC PREPARATION AND FINALIZATION March 14 – 18, 2016 (no classes)			
March 21, 2016	Chapter 14	Skeletal system development	
March 23, 2016	Chapter 15 Chapter 16	Muscular system development Limb development	
March 23, 2016	**INFOGRAPHIC ASSIGNMENT DUE DATE (11:59 PM via OWL)**		
March 28, 2016 March 30, 2016	Chapter 17	Nervous system development	
April 4, 2016	Chapter 18	Development of special sense organs	
April 6, 2016		Course Review	
Final exam period (April 9 – 30)		**Final exam (cumulative exam)**	