Health Sciences

Western HealthSciences

4320B

HUMAN EMBRYOLOGY, DEVELOPMENT AND DISEASE

Course Instructor: Daniel Belliveau, Ph.D.

School of Health Studies
Faculty of Health Sciences

2019

HS 4320B

Human Embryology, Development and Disease

The prerequisite for this course is HS 3300A/B or KIN 3222A/B. Unless you have either the requisites for this course or written special permission from your Dean to enroll 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.

January – April 2019

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. (**Tuesday, 9:30 am – 11:30 am University College (UC) 1110 and FRIDAY, 9:30 am – 10:30 am, FIMS and Nursing Bldg (FNB) room 2210**). 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 communication piece 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 222
Ext. 88235
dbellive@uwo.ca

OFFICE HOURS
Friday 10:30 – 12:30 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: I can be contacted through my institutional e-mail address: dbellive@uwo.ca. I will endeavor to answer your e-mail promptly and within 48 hours. I will rarely respond to emails during the weekend. 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, typically of four students. Teams will be developed using the CATME algorithm (https://info.catme.org/). The Comprehensive Assessment of Team Member Effectiveness (CATME) aid in creating student teams that work effectively based on experience and preferences of the members. Teams will be arranged after the first week of class 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 professional situations. 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.

GRADING:	Midterm exam **February 12th 2019** (in class)	**20%**	Standard five-item multiple-choice style exam comprised of 30 questions and short answer/case study questions.
	Final Exam (cumulative) **April exam period**	**35%**	Exam will be comprised of standard and K-type multiple-choice questions, images and short answer questions and case studies.
	Infographic Assignment Due: **March 29, 2019** (Some components due **earlier**)	**35%**	Development Teams will collaborate to create an infographic and accompanying Professionals Handbook describing a congenital anomaly, 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.

Therefore, 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.

LECTURE REVIEW QUIZZES
Lecture review quizzes will use the collaborative format to give students an opportunity to evaluate their understanding of course material to date. These short (~ 15 minutes, 8 questions) quizzes will take place at the beginning of class.

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

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 35% of the final course grade.

Supplementing the infographic will be a Health Professionals Handbook, a brief targeted towards a trained and professional audience that describes in detail, the congenital anomaly and its mechanism of deviation from normal development. The handbook will provide a description of resources, procedures, tools or facilities that can help address the anomaly. Details will be available on the assignments tab in OWL.

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

Important Due Dates	Topic	Weight
▪ February 15, 2019	Identify the topic area	0 %
▪ March 15, 2019	DRAFT Infographic, submitted to OWL by end of day	0 %
▪ March 22, 2019	Peer review of DRAFT infographic by end of day	5 %
▪ March 29, 2019	FINAL Infographic, submitted to OWL by end of day	15 %
▪ March 29, 2019	Handbook, submitted to OWL by end of day	15 %
▪ April 2, 2019	Review of Peers (Catme.org)	0 % **
		35 %

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. All assignments must be submitted via OWL, no assignments will be accepted at the School of Health Studies office.

** The review of a peer's contribution to the Development Team's operation and production of work is an important element of successful teams. Such reviews may be used to amend the assessment of an individual member of the Development Team in regard to their work on the assignment.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University. 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)

GRADING POLICY

The university-wide descriptor of the meaning of letter grades, as approved by Senate:

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work that is clearly above average
B	70-79	Good work, meeting all requirements and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable.
F	below 50	Fail

It is expected that the grades for this course will fall between 74% - 80%. In the event that the course average falls outside this range, a constant may be added (or subtracted) from each student's grade, by the instructor, to bring the class average in line with School policy.

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 do not ask your instructor to do this for you. It degrades our collective experience as educators and learners. We both have an appreciation of high standards.

USE OF ELECTRONIC DEVICES

During Exams: Unless you have medical accommodations that require you to do so, or explicit permission from the instructor of the course, you may not use any of the following electronic devices during ANY tests, quizzes, midterms, examinations, or other in-class evaluations: cellphones, smart phones, smart watches, smart glasses, audio players or recorders of any sort, video cameras, video games, DVD players, televisions, laptop/notebook/netbook computers, flashlights or laser pointers.

During Lectures and Tutorials: Although you are welcome to use a computer during lecture and tutorial periods, you are expected to use the computer for scholastic purposes only, and refrain from engaging in any activities that may distract other students from learning. From time to time, your professor may ask the class to turn off all computers, to facilitate learning or discussion of the material presented in a particular class. **Unless explicitly noted otherwise, you may not make audio or video recordings of lectures – nor may you edit, re-use, distribute, or re-broadcast any of the material posted to the course website.**

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. I welcome the use of computers to take notes. However, ensure that your use abides by the policy on use of electronic devices stated above.

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.

POLICIES THAT SAFEGUARD YOUR SUCCESS

HEALTH AND WELLNESS

As part of a successful undergraduate experience at Western, we encourage you to make your health and wellness a priority. Western provides several on-campus health-related services to help you achieve optimum health and engage in healthy living while pursuing your degree. For example, to support physical activity, all students receive membership in Western's Campus Recreation Centre as part of their registration fees. Numerous cultural events are offered throughout the year. Please check out the Faculty of Music web page (http://www.music.uwo.ca/), or the McIntosh Gallery (http://www.mcintoshgallery.ca/). Further information regarding health and wellness-related services available to students may be found at http://www.health.uwo.ca/.

If you are in emotional or mental distress should refer to Mental Health@Western (http://www.uwo.ca/uwocom/mentalhealth/) for a complete list of options about how to obtain help. To help you learn more about mental health, Western has developed an interactive mental health learning module, found here: https://uwo.ca/health/mental_wellbeing/education/module.html.

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/

ACCOMMODATION FOR MEDICAL ILLNESS OR NON-MEDICAL ABSENCES

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.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: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

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.

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 https://www.uwo.ca/univsec/pdf/board/code.pdf

ACADEMIC 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 Web site: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

ENGLISH PROFICENCY FOR THE ASSIGNMENT OF GRADES

Students must be proficient in spoken and written English and must demonstrate the ability to write clearly and accurately. For more information , visit https://www.uwo.ca/univsec/pdf/academic_policies/exam/english.pdf

Health Sciences 4320B

Human Embryology, Development and Disease

Course Schedule – Winter 2019

Classes: Tuesday 9:30 – 11:30 *(UC 1110) and* ***Friday 930 – 10:30*** *(FNB 2210)*

The Basics of Human Development			January 8, 11
	Course introduction		
Chapter 1	Developmental periods, descriptive terms		
Chapter 2	Gametogenesis		
Early Development			January 15, 22, 25
Chapter 2	First week of development		
	No Class on Friday January 18, 2019		
Chapter 3, 4	Second and third week of development	*January 22*	***Quiz 1***
Embryonic Period			January 29; February 1
Chapter 5	Fourth to eighth week of development		
	Derivation of germ layers	*January 29*	***Quiz 2***
	Embryonic age		
Fetal Period			February 5, 8
Chapter 6	Fetal development (ninth week to birth)	*February 5*	***Quiz 3***
Chapter 7	Placenta and fetal membranes		
	Parturition		
Chapter 20	Human birth defects		
February 12, 2019	**Midterm exam (in class)** **All lectures up to and including October 5, 2017**		
	READING WEEK February 11 – 14, 2019		
Organogenesis			February 15 – April 9
February 15	Chapter 8	Body cavities	
February 15	**Infographic Assignment TOPIC selection** **(11:55 PM via Google Forms)**		
February 26	Chapter 10	Respiratory system development	
February 26	Chapter 11	Digestive system development	***Quiz 4***

March 1		Midterm exam review	
March 5	Chapter 11	Digestive system development (continued)	***Quiz 5***
March 5	Chapter 12	Urogenital system development	
March 8	Chapter 13	Cardiovascular system development Pharyngeal arch arteries	
No Class during on March 12 and 15			
March 15	**Draft INFOGRAPHIC for peer review (11:55 PM via OWL)**		
March 19, 22	Chapter 13	Cardiovascular system development (cont.) Pharyngeal arch arteries	***Quiz 6*** (March 19)
March 22	**PEER ASSESSMENT of draft infographic**		
March 22, 26	Chapter 13	Pharyngeal arch arteries (continued) Fetal and neonatal circulation	
March 29, 2019	**Final INFOGRAPHIC and PROFESSIONAL HANDBOOK (11:55 PM via OWL)**		
March 29, April 2	Chapter 14	Skeletal system development	
April 2, 2019	**EVALUATION of peers (11:55 PM via Catme.org)**		
April 2	Chapter 15 Chapter 16	Muscular system development Limb development	
April 5, 9	Chapter 17	Nervous system development	
April 9		Course Review	
Final exam period		**Final exam (cumulative exam)**	