

**The University of Texas at El Paso  
College of Health Sciences  
Doctor of Physical Therapy Program**

DRSC 6301\_CRN35668

Normal Physiology/ Embryology

Summer 2023

**COURSE SYLLABUS**

**Credit Hours: 3**

**Contact Hours: Total: 45 hrs**  
Lecture: 45 hrs; Lab: 0 hrs; Clinic: 0 hrs

**Schedule:**

Tuesday 9:00 am - 11:30 am (3333 N. Mesa, Rm 120)  
Thursday 9:00 am - 11:30 am (3333 N. Mesa, Rm 120)

**Coordinator/Instructor(s):**

Faculty	Dr. Bala Kathirvelu, MBBS, PhD (Primary)	Dr. Alvaro Gurovich, PT, PhD
Office location	3333 N. Mesa, Rm 115 lobby	3333 N. Mesa, Rm 115 lobby
Phone	747 7260	747 7248
Email	<a href="mailto:bkathirvelu@utep.edu">bkathirvelu@utep.edu</a>	<a href="mailto:agurovich@utep.edu">agurovich@utep.edu</a>
Office hours	by email request (Fridays)	by email request

Teaching Assistant: N/A

**Course Description:** A review of the basic processes and events of human embryology that lead to morphogenesis, and the timing of major events, in embryogenesis are presented. These topics inform the mechanical, physical, and biochemical functions of adult organ systems and prepare the student for future coursework in gross anatomy, pathophysiology, and neuroscience.

**Course Prerequisites for DPT Students:** The UTEP DPT Program curriculum is a lock-step curriculum. Therefore, students must pass all courses in the prior semester of the DPT Program in order to enroll in courses in the subsequent semester. Faculty may consider exceptions for PT 6116 PT Capstone Project I and PT 6117 PT Capstone Project II.

**Course Objectives:**

1. Identify the time sequence for normal development of the cardiovascular, endocrine and metabolic, gastrointestinal, genital and reproductive, hematologic, hepatic and biliary, immune, integumentary, lymphatic, musculoskeletal, nervous, respiratory, and renal and urologic systems. (7A physiology; 7C cardiovascular; 7C endocrine and metabolic; 7C gastrointestinal; 7C genital and reproductive; 7C hematologic; 7C hepatic and biliary; 7C immune; 7C integumentary; 7C lymphatic; 7C

musculoskeletal; 7C nervous; 7C respiratory; 7C renal and urologic)

[Comprehension]

2. Recognize the consequences of impaired development during critical developmental periods in the cardiovascular, endocrine and metabolic, gastrointestinal, genital and reproductive, hematologic, hepatic and biliary, immune, integumentary, lymphatic, musculoskeletal, nervous, respiratory, and renal and urologic systems. (7A physiology; 7C cardiovascular; 7C endocrine and metabolic; 7C gastrointestinal; 7C genital and reproductive; 7C hematologic; 7C hepatic and biliary; 7C immune; 7C integumentary; 7C lymphatic; 7C musculoskeletal; 7C nervous; 7C respiratory; 7C renal and urologic) [Comprehension]
3. Recognize how epithelium is modified to optimize secretion, absorption, movement, and protection. (7A physiology) (7A Histology) [Comprehension]
4. Identify the normal function and biochemistry of cells for the cardiovascular, endocrine and metabolic, gastrointestinal, genital and reproductive, hematologic, hepatic and biliary, immune, integumentary, lymphatic, musculoskeletal, nervous, respiratory, and renal and urologic systems. (7A physiology; 7C cardiovascular; 7C endocrine and metabolic; 7C gastrointestinal; 7C genital and reproductive; 7C hematologic; 7C hepatic and biliary; 7C immune; 7C integumentary; 7C lymphatic; 7C musculoskeletal; 7C nervous; 7C respiratory; 7C renal and urologic) [Comprehension]
5. Recognize genetic and epigenetic influences on normal development. (7A genetics) [Comprehension]
6. Identify the association between nervous system maturation with volitional and automatic movement development. (7A anatomy; 7A neuroscience; 7C musculoskeletal; 7C nervous) [Comprehension]
7. Recognize the actions of hormones on cardiovascular, endocrine and metabolic, gastrointestinal, genital and reproductive, integumentary, musculoskeletal, and respiratory systems. (7A physiology; 7C cardiovascular; 7C endocrine and metabolic; 7C gastrointestinal; 7C genital and reproductive; 7C integumentary; 7C musculoskeletal; 7C respiratory) [Comprehension]

- **Cultural / Linguistic Engagement and Competence:** n/a

• **Evidence-Based Practice and Research:** n/a

• **Clinical Reasoning:** Clinical reasoning is woven across the course during teaching.

• **Interprofessional Collaborative Practice:** n/a

**Methods of Instruction:** Lectures and lecture materials Blackboard handouts/PPT slides, and textbook readings.

**Methods of Evaluation:** Student competence and attainment of course objectives are assessed using a variety of methods. These methods and their contribution to the final grade are listed in the table below.

<u>Item</u>	<u>Grade Composition</u>
Examination 1	25%
Examination 2	25%
Quizzes (5quiz, <b>4 points</b> each)	20%
Final Examination	30%
Total	100%

\*If you are consistently performing below 80% you are required to arrange a meeting with the instructor to develop study strategies for performance improvement.

**Grading Scale:** The following letter grade scale is used for the UTEP Doctor of Physical Therapy Program:

<u>Letter Grade Scale</u>	<u>Numerical Grade Scale</u>
A	90-100
B	80-89
C	70-79
F	<b>Below 70</b>

#### **Required Textbooks and Other Learning Resources:**

- 1) Pathophysiology of Disease: An Introduction to Clinical Medicine, 8e  
Gary D. Hammer, Stephen J. McPhee (**Available online**)  
<https://accessphysiotherapy.mhmedical.com/Book.aspx?bookid=2468>

#### **Recommended Textbooks and Other Learning Resources:**

- 1) Understanding Pathophysiology, 7th Edition, Mosby Inc., Elsevier ISBN: 9780323639088 Authors: Huether, McCance
- 2) Moore KL, Persaud TVN, Torchia MG. *Before We Are Born: Essentials of Embryology and Birth Defects*, 9th ed., Philadelphia: Elsevier; 2016. ISBN 978-0-123-31337-7 or current.

#### **Resources Available for Student Success:**

##### **Confidential Resources:**

- **Center for Accommodations and Support Services (CASS):** If you have or suspect a disability and need accommodations, you should contact the Center for Accommodations and Support Services (CASS) at 747-5148. You can also e-mail the office at [cass@utep.edu](mailto:cass@utep.edu) or go by their office in Union Building East, room 106 (next to the UTEP post-office). For additional information, visit the CASS website at <http://sa.utep.edu/cass>.
- **The UTEP Student Health Center:** Union East Suite 100; 915.747.5624; [www.utep.edu/chs/shc](http://www.utep.edu/chs/shc)

- **The UTEP Counseling and Psychological Services:** 202 Union West, 915.747.5302; [www.utep.edu/student-affairs/counsel](http://www.utep.edu/student-affairs/counsel)

**Additional Resources:**

- Division of Student Affairs. 915.747.5076, [www.utep.edu/student-affairs](http://www.utep.edu/student-affairs)
- DPT Library Research Guide: <http://libguides.utep.edu/pt>
- Writing Center: 915.747.5112. <https://uwc.utep.edu>
- Computer Labs: Independent Learning Center (ILC), 1<sup>st</sup> floor Campbell Building
- Military Student Success Center: 915.747.5342, [www.utep.edu/student-affairs/mssc](http://www.utep.edu/student-affairs/mssc)
- Student Wellness Program. 915.747.6738, [www.utep.edu/chs/wellness](http://www.utep.edu/chs/wellness)

**University Policies:** All students are responsible for following UTEP policies and procedures found in the Handbook of Operating Procedures at [www.utep.edu/vpba/hoop](http://www.utep.edu/vpba/hoop)

**Program Policies:** All DPT students are responsible for following all policies and procedures documented in the current DPT Student Handbook. Course policies found in the DPT Student Handbook apply to all courses in the DPT curriculum. The current DPT Student Handbook may be found on the DPT Student Resources site on Blackboard.

**Academic Integrity:** The UTEP DPT Program has a “**zero tolerance policy**” for **scholastic dishonesty**. DPT students must demonstrate academic integrity at all times. The current DPT Student Handbook outlines specific definitions, expectations, details, and consequences related to academic integrity and scholastic dishonesty. Additional information related to academic integrity is available through the UTEP Division of Student Affairs at [www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html](http://www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html)

**Course-Specific Policies:**

1. **Attendance Policy - Absences:** Refer to current DPT Student Handbook “Attendance and Classroom Behavior” for the DPT Program policy. [https://www.utep.edu/chs/pt/Files/docs/Student%20Handbook\\_2026a.pdf](https://www.utep.edu/chs/pt/Files/docs/Student%20Handbook_2026a.pdf)

Additional course-specific policy are as follows:

- As a student enrolled in a professional program, it is also expected that every student will be seated and attentive as soon as class begins. Tardiness is unprofessional and impacts your fellow peers by interrupting the classroom dynamics.
- An attendance sheet will be circulated at the beginning of each lecture for your signature.
- If you miss a class, you must contact your instructor via email: [bkathirvelu@utep.edu](mailto:bkathirvelu@utep.edu) within 24 hours of the missed class.
- If you miss a class, you are responsible for the material that was covered in lecture, and any announcements that were made in class that you missed.

- There will be no make-up exams unless arrangements are made prior to the scheduled date, or in the case of an unforeseen emergency situation.
  - Missed exams will be entered as a zero grade unless the student has made prior arrangements with the instructor.
  - The instructor will endeavor to arrange a convenient make-up date for both of our schedules.
  - Make-up quizzes and exams will cover the same content but the format of the test may be different.
  - It will not be the policy of this instructor to routinely allow students to take advantage of missing quizzes and exams with the expectation that they will be able to make up the work later.
  - I consider extraordinary circumstances worthy of an excused absence to include: military duty, jury duty, documented hospitalization, documented illness, funerals, and/or religious observations.
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2. **Attendance Policy - Tardiness & Early Departures:** Refer to the current DPT Student Handbook “Attendance and Classroom Behavior” for DPT Program policy. Additional course-specific policy is as follows:
  3. **Electronic Devices:** Refer to current DPT Student Handbook “Electronic Devices” for DPT Program policy. Additional course-specific policy is as follows:
    - All cell phones must be turned off, or placed on vibrate, before the beginning of class. [Cell phones can be disruptive and a distraction during valuable lecture time which can negatively impact all the students in the class.](#)
    - Cell phones may not be used to photograph quizzes or exams. Online exams are stored digitally and can be reviewed upon request.
  4. **Professional Behavior Policy:** See DPT Student Handbook “Attendance and Classroom Behavior”, “Professional Behaviors” and “Unprofessional Behavior:” for general program policy. Additional course-specific is as follows:
  5. **Late or Missed Assignments and Assessments Policy:** See current DPT Student Handbook “Written Examination Policy”. Additional course-specific policy is as follows:
    - Your evaluation will be based on your performance on two exams in class and online quizzes, and a final exam.
    - Quizzes will consist of questions given at the beginning of class covering the material from the previous class(es) or may be administered as an on-line quiz.
    - Expect a weekly quiz, although there may or may not be a quiz every week.
    - In-class quizzes (online) will be given at the start of class (first 15 minutes).

- If you are late to class you will only have the remaining time (of the initial 15 minutes) to complete the quiz.
- If you miss the quiz entirely you will receive a zero.
- In the case of an excused absence from class, the student and instructor will coordinate a make-up time convenient to both our schedules AND within a short window of time.
- The final examination will be cumulative (10-20% from the first two exams and 80-90% from the last third of the course).
- An unexcused absence resulting in a missed exam will result in a grade of zero on that exam and no make-up will be given.

6. **Skills Check Policy:** No skills checks

7. **Practical Exam Policy:** No practical examination

**Course Content and Schedule:** (Note: Students will be notified of changes via Blackboard or email. Additional details may be available in supporting course documents provided by the course instructor).

**Special Note:** The Lectures follow your textbook but will be the highlights of the material. You will need to memorize a lot of material, and study groups are very helpful. You should read the Chapter readings before the Lecture, to familiarize yourself with the material and any unfamiliar terms. I will be emphasizing the most important material.

- The PowerPoint slides presented in lecture will be available on Blackboard.
- As a pre-professional enrolled in a professional graduate degree program, it is expected that every student shows respect to each other, in the same way, that we would show our respect to patients, clients, peers, and other professionals in our field or in any interdisciplinary field with whom we interact.
- Employ and practice your soft skills in this course: showing commitment, time management, positive attitude, motivation, flexibility, persistence and perseverance, empathy, punctuality, strong work ethic, self-awareness, staying calm in a difficult situation, and accepting responsibility, to list a few.
- This course contains a large quantity of material that must be committed to memory. Students should endeavor to study to keep current with the schedule of topics.
- It is a very helpful tool to study in small groups and quiz each other on the material.
- The quizzes and examinations are created to measure your knowledge of the important topics presented during lectures or assigned as reading in the textbook.
- Experiment with your learning style.
- Please contact me with any concerns, complaints, questions, gripes, and requests as soon as possible so that I may address it/them immediately.

**Course Content and Schedule:** (Note: Students will be notified of changes via Blackboard or email. Additional details may be available in supporting course documents provided by the course instructor).

PLEASE NOTE THESE IMPORTANT DATES:

Classes **begin: June 02, 2023**

The last day of class in this course is **Thursday, August 3, 2023.**

The Final exam will be on Tuesday, **August 8, 2022 (9 am-12 pm)** Rm 120

<b>Lec. Dt</b>	<b>Topics/quizzes/Examinations</b>
2-Jun	Introduction, Cellular biology
6-Jun	Genetics and Embryology 1
8-Jun	Emb 2: Conception -Wk1-3
13-Jun	Fluids & electrolytes
15-Jun	Immunity
20-Jun	Lymphatics, Integ & Cancer biology
22-Jun	Endocrine & CNS Development
27-Jun	<b>EXAM I</b>
29-Jun	Nervous system
<b>4-Jul</b>	<b>No class</b>
<b>TBA</b>	Musculoskeletal (Dr. Gurovich)
<b>TBA</b>	Cardiovascular system 1 (Dr. Gurovich)
<b>TBA</b>	Cardiovascular system 2 (Dr. Gurovich)
18-Jul	<b>EXAM II</b>
20-Jul	Development- CVS, RS & GIT / Hematology
25-Jul	Digestive System
27-Jul	Respiratory system 1
1-Aug	Respiratory system 2
3-Aug	Renal and Reproductive system
8-Aug	<b>FINALS</b>

**IMPORTANT:** The course schedule is subject to change as needed. You will be notified via BB or email of any changes to the course schedule and content.