

**BMEN 3310.001 Human Systems  
Fall 2025**

**Welcome to UNT!**

As members of the UNT community, we have all committed to being part of an institution that respects and values the identities of the students and employees with whom we interact. UNT does not tolerate identity-based discrimination, harassment, and retaliation. UNT's full Non-Discrimination Policy can be found in the UNT Policies section of the syllabus.

**Instructor:**

Dr. Xiaodan Shi

Email: [Xiaodan.Shi@unt.edu](mailto:Xiaodan.Shi@unt.edu)

Office Location: Discovery Park K240 J

Office Hours: Thursday 1-3 PM, or by appointment via UNT email

Lectures: M/W 10:30-11:20 AM @ Discovery Park K110

Labs: Discovery Park E225B (*No labs in the first week, all labs start from the second week*)

**Course Description:**

- Introduction to understanding mammalian physiology and the engineering aspects of different physiological systems. Focuses on several organ systems, including cardiovascular, respiratory, renal, etc. Introduction to the basic concepts of human anatomy. The gross anatomical features of the body systems are presented together with relevant developmental, histological, functional, and clinical facts.
- Prerequisites: BMEN 1300, BMEN 2320, BIOL 2301, BIOL 2311

**Course Objectives:**

- Upon successful completion of this course, students will (1) understand the functions of the body, including the major systems of the body, cellular biology, and specific organs of the body; (2) learn (and demonstrate what they learned) about homeostasis, (un)common ailments, and current remedies to improve the life of one afflicted; (3) apply this knowledge by designing and presenting a mechanical or technical resolution to a sickness, malformation, or other physical ailment of the body; (4) participate in a concurrent lab by working in groups to learn software that interfaces with and demonstrates the intricacy of the human body.
- ABET Outcome 1: an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- ABET Outcome 4: an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

**Brief List of Topics to Cover**

- Membrane Transport
- Tissues and ECM
- Skeletal System
- Cardiovascular System
- Renal System
- Respiratory System

**BMEN 3310.001 Human Systems**  
**Fall 2025**

**Course Materials**

- No required textbooks. After each lecture, all course materials will be posted on Canvas, including lecture notes, slides, assignments, readings, and other relevant resources.

Recommended references:

*Human Physiology – An Integrated Approach 6<sup>th</sup> Edition* by Dee Unglaub Silverthorn (ISBN 10: 0-321-75007-1)

**Major Assignments and Grading:**

• Homework and Quizzes	15%	A	89.5 – 100%
• Laboratory	20%	B	79.5 – 89.4%
• Three Exams	50%	C	69.5 – 79.4%
• Group Project	10%	D	59.5 – 69.4%
• Attendance	5%	F	< 59.5%

**Important Dates**

• Labor Day	9/1 (M, no class)
• Exam 1	9/22 (M, 10:30-11:20 AM)
• Exam 2	10/27 (M, 10:30-11:20 AM)
• Exam 3	12/6 (Sat, 8:30-10 AM)
• Thanksgiving Holiday	11/24-28 (no class)
• Group Presentations	12/1 (M, 10:30-11:20 AM) 12/3 (W, 10:30-11:20 AM)

**Course Policy**

**Communication Expectations**

- You are expected to check university emails and Canvas announcements regularly. When you miss a class, you are expected to check the course calendar shortly after class to know about assignments, quizzes, and other materials. *Email via Outlook is preferred* for quick questions, and you can expect a response within 24 hours during the workweek (M-F). Office hours are preferred for questions or discussions that are not suitable for the TA.

**Homework and Quizzes**

- Homework will be due on the designated time unless otherwise stated. All homework should be submitted to Canvas in *MS Word or PDF files*. Handwritten copies, photocopies, or email attachments will NOT be accepted.
- Quizzes will be given on Canvas periodically. For each Canvas quiz, you will have *two* timed attempts (15 minutes each); the higher score will be retained. Pop quizzes may be randomly given in class. After the graded quiz is closed, you may use the non-graded, practice quiz to review quiz questions.
- Late policy: 2% deduction per hour lateness. Submission portals will be closed 48 hours after the designated due time, resulting in a zero score.

**BMEN 3310.001 Human Systems**  
**Fall 2025**

**Exams**

- Three *in-person, sectional, closed-book* exams will be given throughout the semester. Each exam will only cover materials from the previous lecture section; there will be no cumulative exams. Exam questions will be a combination of multiple-choice, true/false, fill-in-the-blank, matching, short-answer, calculation, and other types.
- For each exam, you will have *one* timed attempt. Students who requested Alternate Testing accommodation from the Office of Disability Access (ODA) will have extra time on timed exams. You are responsible for contacting the ODA office and testing center to schedule the tests. <https://studentaffairs.unt.edu/office-disability-access/students/requesting-letters>
- All exams will be delivered via *Respondus Lockdown Browser* on Canvas and must be taken *in person in the classroom*. You are expected to resolve any potential technical difficulties in advance, such as compatibility issues, updates, and internet connection problems. No use of other devices or bio-breaks (without ODA accommodation) is allowed during exams. Download the software: <https://download.respondus.com/lockdown/download.php?id=165715487>
- Make-up exams will NOT be given without UNT-approved excuses. <https://policy.unt.edu/policy/06-039>
- If you have *more than two* (three or more) final exams scheduled on one day, you may request to reschedule one of the exams on another day during the final exam period. <https://registrar.unt.edu/exams/exam-policies>

**Attendance Policy and Statement**

- Research has shown that students who attend class are more likely to be successful. Full attendance is worth 5% in the final grade. Being punctual indicates our respect for others. If you are late, know you are welcome to join the class, but please do so without distracting others.
- If it is inevitable to miss a class due to a UNT-approved absence, please provide a copy of the official documentation to me or TAs at your earliest convenience to be excused. <https://policy.unt.edu/policy/06-039>

**Group Project**

- You are expected to work on a group project and present the work with fellow students in class at the end of the semester. See Canvas pages for details and requirements.

**UNT Policy**

**Academic Integrity Policy**

- Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to, *cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage*. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. <https://policy.unt.edu/policy/06-003>

**BMEN 3310.001 Human Systems**  
**Fall 2025**

**Prohibition of Discrimination, Harassment, and Retaliation**

- The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate. <https://policy.unt.edu/policy/16-004>

**ADA Policy**

- UNT makes reasonable academic accommodations for students with disabilities. Students seeking accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time; however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member before implementation in each class. For additional information, see the ODA website (<https://disability.unt.edu/>).

**Course Safety Procedures (for Laboratory Sections)**

- While working in laboratory sessions, students enrolled in BMEN 3310 are required to follow proper safety procedures and guidelines in all activities requiring lifting, climbing, walking on slippery surfaces, using equipment and tools, handling chemical solutions, and hot and cold products. Students should be aware that UNT is not liable for injuries incurred while students are participating in class activities. All students are encouraged to secure adequate insurance coverage in the event of accidental injury. Students who do not have insurance coverage should consider obtaining Student Health Insurance. Brochures for student insurance are available in the UNT Student Health and Wellness Center. Students who are injured during class activities may seek medical attention at the Student Health and Wellness Center at rates that are reduced compared to other medical facilities. If students have an insurance plan other than Student Health Insurance at UNT, they should be sure that the plan covers treatment at this facility. If students choose not to go to the UNT Student Health and Wellness Center, they may be transported to an emergency room at a local hospital. Students are responsible for expenses incurred there.

**Emergency Notification & Procedures**

- UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to the UNT Learning Management System (LMS) for contingency plans for covering course materials.

**BMEN 3310.001 Human Systems**  
**Fall 2025**

*\*\* This schedule is subject to change in any way that serves the educational needs of the students enrolled in this course.*

#	Date	Day	Tentative Topics
1	8/18	M	Syllabus, Introduction
2	8/20	W	Introduction, Cellular basics for human systems
3	8/25	M	Membrane transport -1
4	8/27	W	Membrane transport -2
5	9/1	M	Labor Day, no class
6	9/3	W	Membrane transport -3
7	9/8	M	Membrane transport -4
8	9/10	W	Membrane transport -5
9	9/15	M	Membrane transport -6
10	9/17	W	Tissues and ECM -1
11	9/22	M	Exam 1
12	9/24	W	Tissue and ECM -2
13	9/29	M	Bone and joint -1
14	10/1	W	Bone and joint - 2
15	10/6	M	Cardiovascular - 1
16	10/8	W	Cardiovascular - 2
17	10/13	M	Cardiovascular - 3
18	10/15	W	Cardiovascular - 4
19	10/20	M	Cardiovascular - 5
20	10/22	W	Respiratory -1
21	10/27	M	Exam 2
22	10/29	W	Respiratory -2
23	11/3	M	Respiratory -3
24	11/5	W	Respiratory -4
25	11/10	M	Renal -1
26	11/12	W	Renal -2
27	11/17	M	Renal -3
28	11/19	W	Renal -4
29	11/24	M	Thanksgiving Holiday, no class
30	11/26	W	Thanksgiving Holiday, no class
31	12/1	M	Project Presentation
32	12/3	W	Project Presentation
33	12/6	Sat	Exam 3 (8:30-10 AM)