

BMEN 4000 Bioengineering a superhero
Spring 24

Instructor: Dr. Vijay Vaidyanathan
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Office Hours: TBD
Section Information: BMEN
Time and Place of Class Meetings: TBD

Description of course content:

Superheroes have stepped out of popular culture and comic books to enthrall and inspire people all over. This course examines superheroes in the context of bioengineering and explores the possibility of creating a superhero using bioengineering principles and processes. The course provides wide ranging engineering and scientific sources of biomedical engineering principles for assist devices, replacement organs and enhanced capabilities of a superhero. It examines topics ranging from biomechanical, biochemical, instrumentation and tissue engineering principles to applications in cardiovascular, visual and auditory systems in order to enhance the 'powers' of a superhero.

Prerequisites: BMEN 2210; BMEN 2320; BMEN 3312 or concurrent enrollment

Textbooks and other materials:

Class notes
Lecture notes will be uploaded (pdf) on Canvas after each class meeting.

Evaluation of Major Assignments

Attendance and quizzes	10%
Homework	20%
Projects	70%
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Total	100 %

- **Grading**

Letter grading			
A	90 — 100 %	D	60 — 69 %
B	80 — 89 %	F	< 60
C	70 — 79 %		

University Policy on Academic Misconduct

Academic Misconduct (Sec. 3.4 from the Student Handbook):

Any act that violates the academic integrity of the institution is considered academic misconduct. The procedures used to resolve suspected acts of academic misconduct are available in the offices of Academic Deans and the Office of Campus Life. Specific examples include, but are not limited to:

Cheating: Copying from another student's test paper, written assignment, other report, or computer files and listings; Using, during any academic exercise, material and/or devices not authorized by the person in charge of the test; Collaborating with or seeking aid from another student during a test or laboratory without permission; Knowingly using, buying, selling, stealing, transporting, or soliciting in its entirety or in part, the contents of a test or other assignment unauthorized for release; Substituting for another student or permitting another student to substitute for oneself.

Plagiarism: The appropriation, theft, purchase or obtaining by any means another's work, and the unacknowledged submission or incorporation of that work as one's own offered for credit. Appropriation includes the quoting or paraphrasing of another's work without giving credit (especially online resources). Turnitin will be utilized to ensure online resources are not misappropriated.

Any work not meeting this standard will be evaluated and subject to either a re-write, if the Instructor concludes that the assignment was unintentionally plagiarized or a zero for the assignment. Egregious forms of academic conduct are subject to a formal hearing. For more information on paper writing, including how to avoid plagiarism, and how to use citations, see <http://anthropology.unt.edu/resources-writingpaper.php>. For information on the University's policies regarding academic integrity and dishonesty, see the UNT Center for Student Rights and Responsibilities, <http://www.unt.edu/csrr/>.

Collusion: The unauthorized collaboration with another in preparing work offered for credit.

Sexual Discrimination, Harassment and Assault

UNT is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you (or someone you know) has experienced or experiences any of these acts of aggression, please know that you are not alone. The federal Title IX law makes it clear that violence and harassment based on sex and gender are Civil Rights offenses. UNT has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more.

Personal Distress

Excerpts from <http://studentaffairs.unt.edu/care> "The University of North Texas cares about our students' success, not only academically, but emotionally and physically.... Because of our commitment, we provide literally hundreds of departments and services across campus that respond to our students' unique needs.... UNT believes it is important to foster an environment that encourages students to maintain a standard of responsibility for self-care which includes the ability to respond adequately to one's emotional, physical, and educational needs. If you are experiencing physical or emotional distress which adversely affects your ability to succeed in class, please see me as soon as possible. Together, we will point you towards the appropriate resources.