

BME 5301/6301: BME for Global Health

CRNs: 16130/16179

Fall 2021

Professor. Thomas Boland

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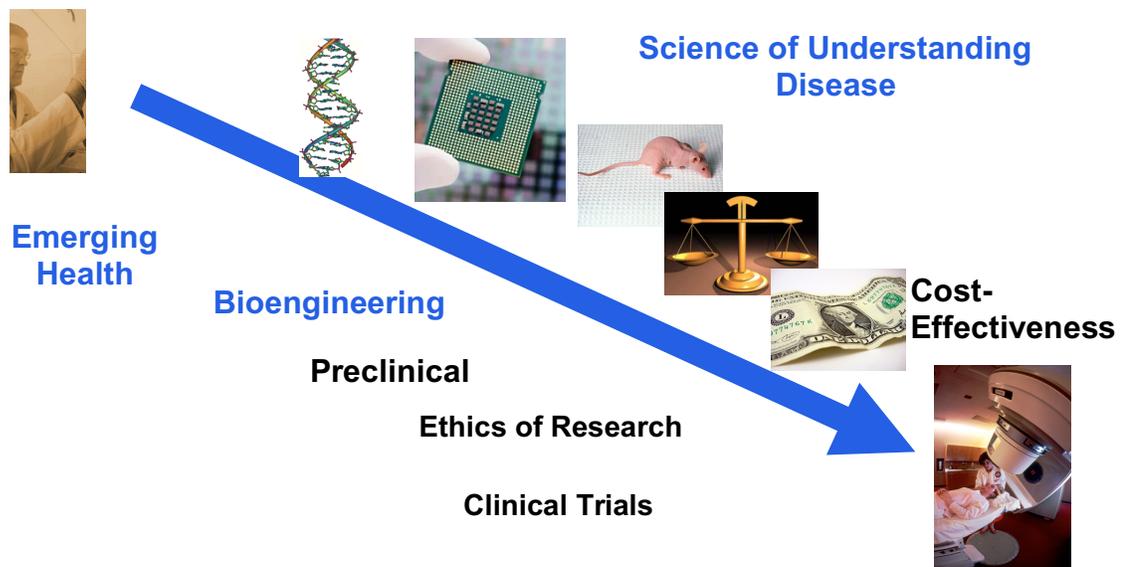
(915) 747-7992

Office Hours: Mondays 1:00 pm – 2:00 pm

Course Information: What this class is about and what we will do

COURSE DESCRIPTION

This course provides an overview of the role of engineering technological advances to improve human health. The following points will be emphasized throughout the semester, What are the challenges in healthcare delivery in resource rich countries, remote locations or resource poor countries? How are we paying for healthcare delivery? What is the role of engineering to solve healthcare problems; and how do new healthcare technologies move from the lab to the bedside.



COURSE OBJECTIVES OR EXPECTED LEARNING OUTCOMES

By the end of this course the student will: 1) We will be able to compare and contrast these items between high and low resource settings; 2). will be able to enumerate legal and ethical issues associated with developing new medical technologies.

REQUIRED MATERIALS

COURSE ASSIGNMENTS AND GRADING

Assignments for this course are assessed according to rubrics. You can find these rubrics by clicking on the appropriate assignment link in Blackboard and choosing to “View Rubric” from the button beneath the Points Possible for the assignment.

Grade Distribution:

1000-900 = A 899-800 = B 799-700 = C 699-600 = D 599 and Below = F

- 100 points: Weekly Homework
- 200 Points: Midterm
- 100 Points: Term Paper
- 200 Points: Oral Presentations
- 300 Points: Final Exam

Weekly Homework: Reinforces the learned concepts

Midterm: Exam midway through the semester.

Term Paper: A written report on the chosen project.

Oral Presentations: Presentation on the chosen project throughout the semester with a final summarizing presentation in the last week(s) of class.

Final Exam: A cumulative exam covering all course content.

Participation: Students are expected to participate in class. Staying home due to COVID-19 symptoms will not affect your grade. However, missed material will need to be made up by the student on their own.

COVID-19 PRECAUTION STATEMENT

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to covidaction@utep.edu, so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID-19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org.

TECHNOLOGY REQUIREMENTS

Some course content is delivered via the Internet through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

You will need to have access to a computer/laptop, scanner, a webcam, and a microphone. You will need to download or update the following software: Microsoft Office, Adobe Acrobat Reader, Windows Media Player, QuickTime, and Java. Check that your computer hardware and software are up-to-date and able to access all parts of the course.

If you do not have a word-processing software, you can download Word and other Microsoft Office programs (including Excel, PowerPoint, Outlook and more) for free via UTEP's Microsoft Office Portal. Click the following link for more information about [Microsoft Office 365](#) and follow the instructions.

IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP [Help Desk](#) as they are trained specifically in assisting with technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!

Course Communication: How we will stay in contact with each other

Because this is an online class, we won't see each other in the ways you may be accustomed to: during class time, small group meetings, and office hours. However, there are a number of ways we can keep the communication channels open:

- **Office Hours:** We will on campus, during office hours
- **Email:** UTEP e-mail is the best way to contact me. I will make every attempt to respond to your e-mail within 24-48 hours of receipt. When e-mailing me, be sure to email from your UTEP student account and please put the course number in the subject line. In the body of your e-mail, clearly state your question. At the end of your e-mail, be sure to put your first and last name, and your university identification number.
- **Announcements:** Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.

Course Policies: What do you need to do to be successful in the course

ATTENDANCE AND PARTICIPATION

Attendance in the course is determined by participation in the learning activities of the course. Your participation in the course is important not only for your learning and success but also to create a community of learners. Participation is determined by completion of the following activities:

- Reading/Viewing all course materials to ensure understanding of assignment requirements
- Participating in engaging discussion with your peers
- Other activities as indicated in class

Because these activities are designed to contribute to your learning each week, they cannot be made up after their due date has passed.

EXCUSED ABSENCES AND/OR COURSE DROP POLICY

According to UTEP Curriculum and Classroom Policies, "When, in the judgment of the instructor, a student has been absent to such a degree as to impair his or her status relative to credit for the course, the instructor may drop the student from the class with a grade of "W" before the course drop deadline and with a grade of "F" after the course drop deadline." See academic regulations in the UTEP Undergraduate Catalog for a list of excuse absences. Therefore, if I find that, due to non-performance in the course, you are at risk of failing, I will drop you from the course. I will provide 24 hours advance notice via email.

DEADLINES, LATE WORK, AND ABSENCE POLICY

Homework

- Homework assignments will be due on Sundays at midnight (11:59 PM). No late work will be accepted if the reason is not considered excusable.

INCOMPLETE GRADE POLICY

Incomplete grades may be requested only in exceptional circumstances after you have completed at least half of the course requirements. Talk to me immediately if you believe an incomplete is warranted. If granted, we will establish a contract of work to be completed with deadlines.

ACCOMMODATIONS POLICY

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the [UTEP Center for Accommodations and Support Services](#) (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, or email them at cass@utep.edu, or apply for accommodations online via the [CASS portal](#).

SCHOLASTIC INTEGRITY

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic

dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#).

PLAGIARISM DETECTING SOFTWARE

Some of your course work and assessments may be submitted to SafeAssign, a plagiarism detecting software. SafeAssign is used review assignment submissions for originality and will help you learn how to properly attribute sources rather than paraphrase.

COPYRIGHT STATEMENT FOR COURSE MATERIALS

All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated.

Weekly Calendar (Subject to Change)

This calendar provides an overview of the course. More details and a weekly checklist are available in the weekly modules in Blackboard. The due date for major writing assignments is ALWAYS Sunday at 11:59 PM (MST). No late work will be accepted.

Week	Topic covered
1	Emerging Medical Technologies, Technology Assessment, Basic Health & Economic Data;
2	Health problems in developed and developing world
3	Health Systems: A global comparisons
4	Evolution of Technology: Scientific Method, Engineering Design & Translational Research
5	Prevention of Infectious Disease
6	Ethics of Clinical Research
7	Technologies for Early Detection of Cancer
8	Cost-effectiveness of Cancer Screening
9	Devices for Treatment of Heart Disease
10	Clinical trials, Sample size calculation
11	FALL BREAK
12	Regulation of Healthcare Technologies
13	Technology Transfer
14	Future of Bioengineering & World Health
15	Student Presentations
16	FINAL EXAM