Course Syllabus

BME1520 Preventing injury and illness

1 Why this course matters

Many of us suffer from injuries or illnesses that are largely preventable. In some cases, our lives will be turned upside down suddenly, as in the case of an individual sustaining a concussion following a fall resulting from a slip in icy weather or a trip on an uneven sidewalk. Similarly, we may become thrown into the role of an unpaid caregiver when someone we care about comes home after surviving a stroke and a slew of new challenging tasks must be managed. For those of us that have a disability, inactivity resulting from the poor accessibility of our environment can spark a slower but steady downward spiral in health. Other examples of preventable conditions include pressure injuries for individuals with poor mobility and musculoskeletal disorders experienced by caregivers (paid or unpaid) who often have to perform heavy patient handling tasks while adopting awkward postures. **Nearly all of us will either be affected by experiences like these directly or through someone we care about.**

2 What you will learn

This graduate course will provide in-depth coverage on the state-of-the-art approaches for preventing these injuries and illnesses. These principles include topics from the fields of healthcare, biomechanics, ergonomics, and human factors. In particular, we will focus on the needs of individuals with disabilities and their caregivers, who are likely to experience the greatest negative impacts of injury and illness. **You will learn how to prevent injury and illness for yourself and the people you care about.**

3 Course design

The course will consist of a combination of presentations from the instructor, guests and students. The evaluation for the course will be project-based. Students will be asked to develop a preventative approach based on the topics discussed and develop a plan for how it could be implemented and/or evaluated. Each student will share their proposed idea in oral presentations and written proposals. Students will be asked to provide constructive feedback on their peers' writing and presentation skills and will be evaluated on the quality of their feedback.

3.1 Course format

- Tuesdays 10-12, Room 11-111, 550 University Avenue
- Virtual office hour (by appointment), Tuesday 4-5pm

3.2 Pre-requisites

- There is no specific pre-requisite knowledge needed for this course

4 Course project description and examples

Potential projects may include identifying a preventative approach in the scientific literature that has demonstrated potential on a small scale and developing a plan for

scaling up the use of the approach. For example, a new generation of winter footwear that incorporates composite materials in the outsole has been shown to reduce the risk of falls for outdoor workers in the winter by 80%. A student could choose to develop a business case to demonstrate that a company employing many outdoor workers would save money by providing better winter footwear to all staff.

Another project could focus on raising awareness of the importance of a preventative approach for members of the public. For example, many people who suddenly need to spend extended periods in bed because of illness or injury may be unaware that they may be at risk for pressure injuries. A student project could take on the development of a social media campaign to raise awareness for pressure injury prevention.

4.1 Suggested presentation and proposal structure

- **Background/Introduction:** Establish the importance of the problem you are trying to solve, and who your presentation/proposal is targeting (e.g., the general public, a research funding body, a government body, company, etc.)
- **Objective:** Try to state your specific goal in one or two sentences.
- **Methods:** How will you achieve your objective? Try to incorporate concepts from the course
- **Impact:** If your proposal is successful, how will the project make things better?

4.2 Project presentation evaluation

- Describe the problem and proposed solution including costs and impact 25%
- Ability to answer questions from the audience 25%
- Ability to follow presentation guide 25%
- Engagement in other presentations 25%

4.3 Project proposal evaluation

- Describe the problem and proposed solution including costs and impact 60%
- Ability to follow writing guide 40%

4.4 Course evaluation

Deliverable	Length (max)	Grade %
Topic presentation	1 minute	10
Initial presentation	3 minutes	10
Initial proposal	200 words	10
Final presentation	10 minutes	25
Final proposal	500 words	25
Engagement during presentations and feedback	Willingness to engage with instructor/students in class and provide feedback on student presentations	10
Proposal feedback	Quality of your feedback on other student proposals	10