

November 02, 2021

TO: The Faculty of the College of Engineering
FROM: The Faculty of the Weldon School of Biomedical Engineering
RE: New Undergraduate Course, BME 38000, Professionalization in Biomedical Engineering

The Faculty of the School of Biomedical Engineering has approved the following new course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

BME 38000: Professionalization in Biomedical Engineering

Term Offered: Fall, Studio 2, Cr. 1

Prerequisite: BME 29000

Major Restriction: Biomedical Engineering only

Description: This active learning course covers standards of practice, regulatory and legal requirements, and moral and ethical issues; increases awareness of career paths; and addresses current and emerging trends and challenges at the frontiers of the field of biomedical engineering. Most class sessions will consist of a short introduction to a topic followed by a breakout session for active investigation of the topic. During the breakout sessions, course instructors will be available to guide discussion and answer questions.

Reason: This new course will provide advanced training in professionalization, ethics, critical thinking and analysis, and technical writing that are critical to success in a biomedical engineering career. This course is intended to provide non-technical skill set acquisition and career guidance for juniors as they enter into their Pathway courses in the new curriculum.



David M. Umulis
Dane A. Miller Head and Professor
Weldon School of Biomedical Engineering

Course Information

- **BME 380: Professionalization in Biomedical Engineering**
- **CRN:** TBD
- **Meeting day(s) and time(s).** TBD (expected Mondays, 9:30-10:20 am (Section 1) or 10:30-11:20 am (Section 2) in MJIS 1097)
- **Course credit hours:** 1
- **Prerequisites:** BME 290
- **Instructional Modality:** Face-to-Face active learning with additional online content available via Brightspace
- **Course web content/assignment submission:** <https://purdue.brightspace.com>

Instructor(s) Contact Information

- **Instructor:** Prof. Tamara Kinzer-Ursem
 - **Office Location:** MJIS 3084
 - **Purdue Email Address:** tursem@purdue.edu
 - **Student Consultation hours, times, and location:** By appointment
- **Teaching Assistants** - TBD

Course Description

Professionalization in a particular career involves learning the set of norms established by the field that enhance the quality of the workforce and regulate standards of practice for the health and safety of those whose lives are impacted.

This active learning course will cover standards of practice, regulatory and legal requirements, and moral and ethical issues; increase awareness of career paths; and addresses current and emerging trends and challenges at the frontiers of the field of biomedical engineering. Most class sessions will consist of a short introduction to a topic followed by a breakout session for active investigation of the topic. During the breakout sessions, course instructors will be available to guide discussion and answer questions.

Learning Resources, Technology & Texts

- **Informed Learning resources such as**
 - **Optional textbook:** Style: Lessons in Clarity and Grace by Joseph Williams (Author), Joseph Bizup (Author), Pearsons, ISBN-13: 978-0134080413, ISBN-10: 0134080416
 - **NSPE Code of Ethics for Engineers** <https://www.nspe.org/resources/ethics/code-ethics>
- **Brightspace learning management system:** All course material will be available here

Learning Outcomes

- Upon completion of the course each student will have the ability to:
 1. *Recognize and describe professional and ethical codes of conduct, and ethical dilemmas which pertain to a practicing biomedical engineer. (4.1*)*
 2. *Use basic technical writing skills to clearly and concisely synthesize relevant technical information, data, and ideas from multiple sources. (3.3* and 7.1*)*
 3. *Generate personal statements, curriculum vitae and other professional documents that are used in chosen career pathways that are available to biomedical engineers. (7.2*)*

4. Describe contemporary issues in biomedical engineering and understand their impact on personal and public health. (4.5*)
5. Identify skills and opportunities that enhance professional career development. (7.3*)

*These learning outcomes (LO) are linked to performance indicators that are an essential part of our [ABET-accredited student outcomes](#) that prepare students for a successful career in the field of biomedical engineering.

Assignments

All assignments are due at 11:59 pm (EST) of the due date on Brightspace, unless otherwise noted.

All submitted files should be appended by your Purdue alias, such as “**resume-alias.doc**”.

Missed assignments may only be made up when you notify the instructor ahead of time with an explanation and plan for completion. These requests will be accepted at instructor discretion and will include a point penalty. 20% of the total points will be deducted for assignments received 1-6 days late; assignments received more than 1 week late will receive 0 points.

The following assignments will be evaluated for each course module. The semester will be divided into two major modules that each student group will complete.

Assignment	Percent of Grade
Technical Writing Assignments	20 %
Career Path Documents	20 %
Ethics Group Project	20 %
Participation in activities	20 %
Career Exploration Assignment	10 %
Peer Reviews	10 %

Online Course Evaluations: You must complete all online course evaluations for this class AND submit evidence of survey completion to the LMS before finals week.

Self and Peer Reviews: At the close of the group project, your team will complete self and peer evaluations; that is, each person will assess his/her own performance on the team as well as the performance of each team member. Evaluations will be submitted online. At the end of the module, a link to the survey will be sent to you. It is expected that you will provide substantive feedback in the peer evaluations. Your team members will not be able to view this feedback, but this information is essential to the teaching team so that any problems can be identified and addressed in a timely manner.

Evaluation results will be factored in as part of your overall course grade; negative evaluations can adversely affect your grade.

Grading Scale

The following grading scale is a guaranteed minimum; however, based upon student performance, final grades may be curved by the instructor.*

Letter Grade	Percentage	GPA score
A+	100	4.0
A	≥ 95	4.0
A-	≥ 90	3.7
B+	≥ 87	3.3

B	≥ 83	3.0
B-	≥ 80	2.7
C+	≥ 77	2.3
C	≥ 73	2.0
C-	≥ 70	1.7
D+	≥ 67	1.3
D	≥ 63	1.0
D-	≥ 60	0.7
F	60 > grade > 0	0

*Note: Negative peer evaluations can adversely affect your final grade.

Grading Rubrics: Grading rubrics are available on Brightspace. You should use these as a guide in your preparation for these learning assessments.

Re-grade Policy: Students have the right to contest any grade throughout the semester. Once an assignment has been graded and returned, students have **1 week** to protest a grade; after this time grade disputes will not be accepted. In the event that a student feels an assignment has been inappropriately graded, the student must submit a one page, typed document indicating the source of the problem and an explanation for the re-grade submission. The original assignment must be returned with the protest explanation. Papers submitted for a re-grade will be completely reevaluated (i.e., the entire paper will be re-graded, not only the portion under protest), which means that students risk losing additional points for mistakes missed during the first grading process. Please note that all re-grade requests will be evaluated at the end of the term and will only be considered for those students with a borderline grade (e.g., between an A and B).

All assignments must be submitted to Brightspace before the beginning of the lab period in which the assignment is due.

Incompletes: A final grade of incomplete (I) will be given only in unusual circumstances. To receive an “I” grade, a request describing the circumstances, along with a proposed timeline for completing the course work must be made to the instructor.

Attendance Policy

Due to COVID-19, attendance in class is not mandatory. No points are awarded for attendance.

Students can view a recording of class that is posted on Brightspace every Friday afternoon/evening. If sound quality is poor, it is recommended to use the closed caption option.

If anything arises that may cause you to miss class, the professional behavioral standard is to notify your instructors of the situation as far in advance as possible. For unanticipated or emergency absences when advance notification to an instructor is not possible, the student should contact the instructor as soon as possible via email. In cases of bereavement, the student or the student’s representative should contact the Office of the Dean of Students via [email](#) or phone at 765-494-1747.

Office Hours

TAs will hold office hours in the BME Resource Center M/W 7:00 – 9:00pm. General questions should be posted on the class discussion board in Brightspace. Individual questions can be addressed to the instructor via email, who will respond within 1 business day. Appointments to discuss course material can be made with Prof. Kinzer-Ursem by request.

Course Schedule

Week	Date	Topic	Assignment Due
1	Aug 22	Importance of Data Synthesis, Visualization and Technical Writing	
2	Sept 05	Labor Day – No Class	
3	Sept 12	Constructive criticism activity	
4	Sept 19	Biomedical Ethics	Technical writing assignment 1
5	Sept 26	Ethics group project I	
6	Oct 03	Ethics group project II	Ethics essay
7	Oct 10	Fall Break – No Class	
8	Oct 17	Diversity, equity and inclusion applied to engineering ethics	Ethics partner edits
9	Oct 24	Risk Analysis and patent searching	
10	Oct 31	Biomedical Research as a career path	Technical writing assignment 2
11	Nov 7	Biomedical Devices / Regulatory Affairs as a career path.	
12	Nov 14	Medicine as a career path	
13	Nov 21	Consulting and other industry career paths	Resume, CV, and career reflection assignment
14	Nov 28	STAR & Interview question activity	Personal statement
15	Dec 05	Negotiation (COO workshop)	
16	Dec 12	FINALS WEEK	Course Evaluation

*Lecture order and assignment due dates are subject to change, as needed.

Classroom Guidance Regarding Protect Purdue

As Protect Purdue protocols continue to evolve, we recommend you do not include specific protocols in your syllabus, but rather refer students to the Protect Purdue information within your course Brightspace, especially the Protect Purdue Pledge. Please include the following statement in your syllabus.

Any student who has substantial reason to believe that another person is threatening the safety of others by not complying with Protect Purdue protocols is encouraged to report the behavior to and discuss the next steps with their instructor. Students also have the option of reporting the behavior to the [Office of the Student Rights and Responsibilities](#). See also [Purdue University Bill of Student Rights](#) and the Violent Behavior Policy under University Resources in Brightspace.

Academic Integrity

Academic Conduct: You are expected to behave in a professional and ethical manner in all aspects of this course. Plagiarism or cheating will result in a zero for that particular assignment. Instances of unethical behavior will be reported to the Dean of Students Office and will result in a grade reduction of at least one letter grade. If an individual behaves unprofessionally or unethically during the semester, the instructor reserves the right to fail the student. For more information, see Purdue University Student Conduct Code at:

Refer to the Brightspace course page for more information and resources regarding academic integrity.

Accessibility

“Purdue University is committed to making learning experiences accessible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at: drc@purdue.edu or by phone: 765-494-1247.”

Emergency Preparation

In the event of a campus wide emergency, the course outline and requirements may be subject to change. The course instructor will provide information in regards to changes in the course requirements or course schedule as a result of a campus wide emergency. Check Brightspace and your Purdue email accounts for information.

- Fire Alarm – Leave the building immediately, using the nearest exit. Use stairways only. Do NOT use elevators. Tell others to evacuate. Take your keys, coat, purse, and another other critical personal items with you. Close doors behind you.
- All hazards warning – Shelter in place! Go indoors immediately. Determine the cause of the siren using Purdue communications protocols (text alerts, e-mail messages, Purdue homepage). Take appropriate action for the emergency
- Active threat or campus violence – Interior doors with card swipe entry will lock (access with PUID card). Stay away from glass doors and windows. Determine options for escape or concealment (escape if possible; if not, then hide; last resort is to take action).