

**BMEG 201 – Introduction to Biomedical Engineering**

**Student Outcome d: an ability to function on multi-disciplinary teams.**

**Performance Criterion #1:** *Student contributes to group project.*

**Scoring Rubric:**

<b>ASPECT</b>	<b>1-Not proficient</b> (no involvement with the project)	<b>2-Progressing to proficiency</b> (minimal involvement with the project)	<b>3-Proficient</b> (mostly involved with the project)	<b>4-Superior proficiency</b> (involved in all the aspects of the project)
Critical evaluation of the data considered for the project	Does not analyze the data	Rarely analyze the data or what it means	Usually analyze the data and talks about what it means	Always analyze the data and talks about what it means as well as the larger implications of the data analysis
Contributed to the project presentation	Did not contribute to the project presentation	Contributes little to the project presentation	Usually contributes to the project presentation	Always contributes to the project presentation

**Performance Criterion #2:** *Student works effectively as a team member.*

**Scoring Rubric:**

<b>Aspect</b>	<b>1: Not proficient</b>	<b>2: Progressing to proficiency</b>	<b>3: Proficient</b>	<b>4: Superior proficiency</b>
Fulfill duties and assigned roles	Does not perform any of the assigned duties	Performs very little of the assigned duties	Performs all the duties as assigned	Performs all the duties being assigned and aids in other required tasks
Share work in the team	Always relies on others to do the work assigned to the team	Rarely does and gets involved with the assigned work	Usually does and gets involved with the team for the assigned work	Always does the assigned work (all the modules)
Listen to the other teammates	Is always talking and never	Usually doing most of the talking	Usually listens to the other teammates	Always listens to the other teammates

	contributing to the project			
Contributed to the presentation	Did not contribute to the presentation	Contributes little to the presentation	Usually contributes to the presentation	Always contributes to the presentation

**Student Outcome g: an ability to communicate effectively.**

**Performance Criterion #1:** *Students demonstrate proficiency in oral communications while presenting their research project on the assigned topic.*

**Scoring Rubric:**

Aspect	1: Not proficient	2: Progressing to proficiency	3: Proficient	4: Superior proficiency
Presentation organization	Presentation is poorly organized, e.g. no clear introduction or summary of results is presented	Presents key elements of an oral presentation adequately, but organization could be better	Presentation is generally organized but fails to highlight the impact of the topic	Plans an oral presentation effectively; well organized and topic importance is emphasized
Presentation delivery	Talk is poorly presented	Presents key elements of an oral presentation adequately, but organization of the delivery could be better	Presentation is generally organized but fails to talk about the impact of the topic	Plans and delivers an oral presentation effectively; well organized and topic importance is emphasized
Mechanics of the presentation delivery	Is not able to present	Major difficulties with the mechanical aspects of the presentation, e.g., no eye contact; difficult to hear or understand speaking; reads from prepared script; blocks the screen; distracting nervous habits	Has some minor difficulties with the mechanical aspects of the presentation , e.g., eye contact is sporadic; occasionally	Presents well mechanically; makes eye contact; can be easily heard; speaks comfortably with minimal prompts (notecards); does not block screen; no distracting nervous habits

		(um, ah, clicking pointer, etc.)	difficult to hear or understand speaking; Overuses prompts or loses place; occasionally blocks screen; some nervous habits	
Student ability to answer questions	Does not listen carefully to questions, does not provide an appropriate answer, or is unable to answer questions about presentation material	Sometimes misunderstands questions, does not respond appropriately to the audience, or has some trouble answering questions	Usually understands questions, does respond appropriately most of the times however with some errors	Listens carefully and responds to questions appropriately; is able to explain and interpret results for various audiences and purposes

**Performance Criterion #2:** *Students demonstrate proficiency in written communication.*

**Scoring Rubric:**

<b>Aspect</b>	<b>1: Not proficient</b>	<b>2: Progressing to proficiency</b>	<b>3: Proficient</b>	<b>4: Superior proficiency</b>
Format of the poster	Poster is inappropriately short or excessively long and busy; omits to present the main findings of the assigned paper	Poster contains excessive or insufficient detail, it is crowded and misrepresents the assigned topic	Poster has enough detail and technical content to highlight the topic however fails to talk	Poster is well organized and talks about the future implications of the topic being presented and impact for

			about its importance	biomedical engineering
Usage of visual aids in the form of graphs/tables/diagrams/schematics	Students do not use visual aids to support the topic of the poster but only text	Visual aids are minimal; otherwise poster is wordy and/or lacks structure	Uses visual aids however fails to explain or interpret such information	Uses visual aids effectively and supports such usage with well explained statements that highlight the importance of the topic

**Student Outcome h: the broad education necessary to understand the impact of engineering solutions in a global, societal and economic context.**

**Performance Criterion #1:** *Students discuss what biomedical engineering is and how it can provide solution to healthcare-related issues (rubrics; see below)*

**Scoring Rubric:**

Aspect	1: Not proficient	2: Progressing to proficiency	3: Proficient	4: Superior proficiency
Understanding of the global and societal context of biomedical engineering	Very little understanding or discussion on the impact of biomedical engineering solutions in a global and societal context is provided, or discussion is incorrect	Some discussion on the impact of biomedical engineering solutions in a global and societal context is provided, but still missing some major points (e.g. multidisciplinary etc.)	Student shows an understanding on the impact of biomedical engineering solutions in a global and societal context and he/she provides a nearly complete discussion, but misses only some minor points (for instance impacts of the technologies or	Student shows a complete understanding on the impact of biomedical engineering solutions in a global and societal context and he/she provides an in-depth discussion.

			applications of the devices).	
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**Performance Criterion #2:** *Students can analyze how the development of technology, devices and/OR instrumentation can enhance the quality and precision of health care for disease diagnosis, treatment, and prevention (rubrics; see below).*

**Scoring Rubric:**

Aspect	1: Not proficient	2: Progressing to proficiency	3: Proficient	4: Superior proficiency
Global implications of biomedical engineering strategies and applications (e.g. from enhancing the quality and precision of health care delivery to prevention)	Did not consider how advances in biomedical engineering can lead to improved health care solutions	Seems to have considered only minor advances in improved biomedical engineering solution with orientation to improving human healthcare	Good understanding of the widespread effects of advances in biomedical engineering but with somewhat limited perspective about long-term effects	Deep understanding of the immediate and long-term possibilities and issues involving the advances in biomedical engineering

**Student Outcome i:** *a recognition of the need for, and an ability to engage in life-long learning.*

**Performance Criterion #1:** *Students identify key elements and issues related to biomedical engineering topics (rubrics; see below)*

**Scoring Rubric:**

Aspect	1: Not proficient	2: Progressing to proficiency	3: Proficient	4: Superior proficiency
Quality of data assessment	The data assessment is never considered critically, stated clearly or described	The data assessment is rarely considered critically, stated clearly or described comprehensively. The student fails to	The data assessment is usually considered critically, stated clearly and described	The data assessment is always considered critically, stated clearly and described

	comprehensively. The student does not consider all the relevant information necessary for full understanding of the topic being assigned.	deliver all relevant information necessary for full understanding of the topic being assigned.	comprehensively, delivering all relevant information necessary for full understanding of the topic being assigned.	comprehensively, delivering all relevant information necessary for full understanding of the topic being assigned.
Consideration of error as associated with the topic of the presentation	There is no consideration of the error or sources of errors	There is little consideration of the error or sources of errors	Usually there is consideration of the error or sources of errors	Always there is consideration of the error or sources of errors
Format/ Grammar and punctuation/ Tense and voice followed	There is no consideration for the introduced format. The student does not follow the rules of standard English.	Rarely there is consideration for the introduced format The student rarely follows the rules of standard English.	Usually there is consideration for the introduced format The student usually follows the rules of standard English.	Always there is consideration for the introduced format The student always follows the rules of standard English
Recognize the need for further education and continuing studies in the area of biomedical engineering	Little or no recognition for the need in continuing studies on the topic	Moderate recognition for the need in continuing studies on the topic	Good recognition for the need in continuing studies to demonstrate the success and implementation of the topic	Deep understanding for the need in continuing studies to demonstrate the utility of the topic and applicability
Demonstrate an ability to engage in life-long learning	Incapable of doing research on his/her own on the given topic.	Demonstrate some capabilities in doing research on his/her own. Demonstrate some (but inadequate) references or	Capable of doing research on his/her own, i.e. he/she can research major points related to the project .	Very capable of doing research on his/her own, i.e. he/she can do a complete research related to the project.

	No references or knowledge of previous work demonstrated.	knowledge of previous work.	Demonstrate that he/she somewhat familiar with previous work.	Demonstrate that he/she familiar with previous work and talks about implications of future studies.
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