LITERATURE BASED LEARNING (LBL)
Guidelines and Instructions

The goal of this part of the course is to have students learn from the current scientific literature in
the area of mechanobiology. Each LBL session will be preceded by lectures on the topics of
interest. During the LBL session, a small group of students (3-4) will present and lead a
discussion on a paper from the current primary literature that relates to the topic being covered in
lecture at that time. The goal is to extend what the class has already learned in the previous
lectures and to generate a thoughtful discussion on the main findings of the paper and how they
relate to the course.

Requirements for students not presenting:
If you are not presenting, you are still required to read the paper. You must turn in a 250 word
abstract, which is a summary of the paper in your own words, and answer the discussion
questions posed by the group. This abstract is due at the end of the presentation.

Requirements and Deadlines for the presenting group:
Friday before LBL presentation:
Meet with professor to pick up paper and discuss any concerns or questions about the paper
or presentation requirements.

Monday before LBL presentation:
Remind the professor to post to the course website or bring copies of your article to class for
distribution to your classmates.

Wednesday before LBL presentation:
E-mail professor 2 discussion questions to be posted on the website and distributed to the
class. The questions should stimulate thought about the paper in preparation for the class
discussion. Very general questions such as “What is this paper about?” are of limited
usefulness, as are overly specific questions such as “What was the percentage difference in
Parameter A between Experiments 1 and 2?” Examples of appropriate, thought-provoking
questions are:

“What are the applications of the results presented in this paper in the field of
biology/medicine/tissue engineering (pick one)?”
“What other experiments could be used to bolster the authors claims that X causes
Y?”
“Comment on the authors’ assertion that their result will lead to new way of
treating Deadly Disease Z.”

Send the professor a list of 4 to 6 terms that occur in your paper that have not been
previously defined in class. Include brief but accurate definitions for each term. These will
be posted on the website glossary. Focus on terms that are central to the understanding of the paper and make sure your definition reflects the usage of the term in the paper.

**Day of LBL presentation:**

Come to class prepared to present your paper and lead the class in a discussion of its key findings and their relevance to the class. You will be given part of the class time (65 mins). The class discussion should consist of the key points in your paper. Your presentation and subsequent discussion should aim to clarify the paper and address any misunderstandings that your classmates may have. Encourage them during your presentation to ask questions.

Presentation should include:
- Description of who the paper’s authors are, what type of research they do and what institution they are at.
- Briefly discuss the journal where the paper was published, its overall focus, quality, and type.
- Give an introduction with appropriate background information from the article as well as information you had to look up and become familiar with in order to understand the article.
- Description of the methods, find pictures of the equipment used, explain equations used, cell lines used, animal models that were chosen and why.
- Description of results, what do the images tell us, what do the graphs mean. Images are very carefully chosen so please spend time discussing them.
- Discussion, include the authors’ comments and description of the results as well as any you may have. Please note what are your discussion points versus the authors’.

You are encouraged to be creative in helping the class understand the key points. You can structure your presentation in any way you wish. For example, you may want to present the entire paper first and then initiate a discussion. Or, you could present one key finding of the paper at a time with a brief discussion following each. Or you could use another format. You can also be creative in engaging your audience- you may pose questions, break them into teams to address a topic, have them create figures based on the findings or to clarify parts of the paper, etc. If you are in doubt about the appropriateness of your approach, please consult the professor.

**Other Notes:**

Take the time to learn how to properly read a scientific paper. Read the example prepared by Dr. Plopper (RPI) and posted on the website. Thoroughly reading a high quality scientific paper takes a lot of time, reflection, and analysis. There are only 4 papers to be discussed as part of the LBL during the term and the discussions will be more enjoyable and more fruitful if the whole class has properly read the papers.

When presenting a paper, do not try to cover all aspects of the paper in detail. Focus on what our class will benefit from most. In determining what this content is, you will need to
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consider the background and level of knowledge of the rest of the class in your chosen topic area, as well as the relevance to the goals of the course.

Concentrate on the positive aspects of your paper and what the class can learn from it. All papers will have flaws and while it is important to discover and discuss these weaknesses, the focus should remain on the elements of the paper that will further inform the class about your topic.

End your discussion with a summary of the main “take-home” points from your paper. This should include points you prepared before your presentation, as well as any additional key points that came up during the discussion.

There is an example of a LBL presentation on the course website.

Grading: You will be given an evaluation sheet following your presentation with comments and your grade. I will be collecting comments from your classmates about your presentation. I will take those comments and type them up for you to read. If you are the evaluator, please provide constructive feedback to your classmates. The comments are meant to help you improve in your presentation skills as well as highlight the good things you did during your LBL. If there are any concerns, you must speak to me before the class following when the grade was given.
This is the evaluation form your classmates will use to provide feedback on your presentation:

**PRESENTATION ASSESSMENT FORM**

Presenter:     Topic:  
Evaluator:     Date:  

**PRESENTATION**

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Needs Improvement</th>
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<tbody>
<tr>
<td>Well-prepared for presentation</td>
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<td>Clear message and opening</td>
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<td>Organization of ideas</td>
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<td>Conciseness</td>
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<td>Well-thought-out conclusion</td>
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**DELIVERY**

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<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Needs Improvement</th>
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<tbody>
<tr>
<td>Verbal tone, pitch and pace</td>
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<td>Eye Contact</td>
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<td>Movement, stance and gestures</td>
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<td>Poise, confidence and enthusiasm</td>
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**Positive Feedback:**

**Constructive Criticism:**
You will be graded individually on your portion of the presentation.

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<th>Content (50 points)</th>
<th>Comments</th>
<th>Grade</th>
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<td>• Depth and Accuracy (20)</td>
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<td>• Organization flow, timing, transitions (10)</td>
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<td>• Clarity in explanation of material and use of appropriate terms (10)</td>
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<td><strong>Presentation (40 points)</strong></td>
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<tr>
<td>• Verbal tone, pitch, pace, eye contact, movement, stance, gestures, confidence (15)</td>
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<td>• Slides well laid out and free of clutter (15)</td>
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<td>• Figures/text easy to read and understand (10)</td>
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<td><strong>Class Interaction (10 points)</strong></td>
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<td>• Posed questions/used activities for participation (5)</td>
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<td>• Answers to questions reasonable and well stated (5)</td>
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TOTAL