

## **ANALYSIS AND MODELING OF CELL MECHANICS**

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### **Project (due 3/18/13)**

This project involves comparing one of the cell mechanics models discussed in class to experimentally obtained cell mechanics data.

You will take one of the cell mechanics models discussed in class and use its conceptual framework to describe the findings reported in a scientific research paper. This can be as simple as modeling the data in a single figure.

The intent of this project is to conduct a comparison that is similar to the work of Bausch et al., where a spring-dashpot creep model was fitted to magnetic tweezer measurements to obtain estimates on the rheological property of cells.

You will need to make valid assumptions and approximations to compare the model to the data in the paper. If possible, use the knowledge gained from the introductory module on cell biology to support your assumptions. Gross approximations are acceptable if you justify it with a good argument that is clearly communicated.

You are to deliver a final report with the following sections:

- 1) synopsis of the model used and research paper chosen
- 2) disclosure of assumptions and approximations made
- 3) comparison of model data to experimental data
- 4) description of any future experiments that would help to improve the behavior of the model.

Use figures in your report to help communicate the comparisons between your model and the data. Appendices at the end for extended calculations or the code you used is helpful.