**Course Introduction**

**Course Learning Objectives**

Each student should be able to:

* Explain the limitations of constraint-based modeling
* Explain the basic topics to be covered in the course
* Know the course website
* Explain the course expectations
* Explain the grading process
* Explain the expectations for the course project

**Prerequisites**

* BIOL 1610 Biology I
* BIOL 3300 General Microbiology
* CHEM 1220 Principles of Chemistry II
* Math 1220 - Calculus II
* Programming Experience

**Classroom Activities**

**Presentations**

* Lecture Presentation (“*Course Introduction – 2021.pdf”*)

**Reinforcement Activities**

**Required Reading**

* [Lewis, N. E., H. Nagarajan, et al. (2012). "Constraining the metabolic genotype-phenotype relationship using a phylogeny of *in silico* methods." Nature reviews. Microbiology 10(4): 291-305.](https://www.ncbi.nlm.nih.gov/pubmed/22367118)
* *Systems Biology: Constraint-based Reconstruction and Analysis, Bernhard O. Palsson, Cambridge University Press, 2015, Chapter 1*

**Assessment**

**Formative Assessment**

* Reflective Questions

1. Is class attendance required?
2. What percentage of the final grade is based on the project paper?
3. Is there any preparation required before each class period?
4. What is the purpose of the formative assessment?
5. Is their a course midterm?
6. What percentage of the final grade is based on class attendance?
7. What percentage of the final grade is based on the labs?
8. Who is responsible for a student computer compatibility?
9. What is the minimum number of times a week that a student should look at the course website?

**References**

**Journals & Books**

1. [Terzer, M., N. D. Maynard, et al. (2009). "Genome-scale metabolic networks." Wiley Interdiscip Rev Syst Biol Med 1(3): 285-297.](https://www.ncbi.nlm.nih.gov/pubmed/20835998)
2. [Feist, A. M. and B. O. Palsson (2008). "The growing scope of applications of genome-scale metabolic reconstructions using Escherichia coli." Nature biotechnology 26(6): 659-667.](http://www.ncbi.nlm.nih.gov/pubmed/18536691)
3. [David S. Goodsell (2009), “Escherichia coli,” Biochemistry and Molecular Biology Education, Volume 37, Issue 6,  pages 325–332.](http://onlinelibrary.wiley.com/doi/10.1002/bmb.20345/abstract)
4. [Jan Koolman and Klaus-Heinrich Roehm, "Color Atlas of Biochemistry", 2nd Edition, 2005.](http://web.uni-plovdiv.bg/plamenpenchev/mag/books/biochem/Color%20Atlas%20Of%20Biochemistry%202d%20ed%20-%20Jan%20Koolman,%20Klaus-Heinrich%20Rohm.pdf)