

PHYSICS 347 Introduction to Biological Physics

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Office Hours: 2:30 – 3:30 on Wednesdays, but usually available at other times on MWF.

Text:

Lecture notes provided. Recommend the text “*Physical Biology of the Cell*” by Phillips, Kondev and Theriot available to buy on Amazon and on 4 hour Reserve in Library.

Other Texts: “*Random Walks in Biology*” by Howard Berg. On reserve in library.
“*Molecular Biology of the Cell*” by Bruce Alberts et al. On reserve.

Prerequisites:

This course is intended for those majoring in Physics, Biology or Molecular Biology. Completion of 45 credit hours in a science program, including BISC 101, CHEM 122, MATH 152 (or 155), PHYS 121 (or 102 or 126 or 141).

Topics:

1. Molecular motion and the cellular environment
2. Random walks and diffusion
3. Fluids and life at low Reynolds number
4. Entropy, free energy & biological complexity
5. Cellular Computation: genetic switches
6. Mechanical properties of biopolymers
7. Molecular Motors
8. Nerve Impulses

Grading:

6 Assignments (bi-weekly):	30%
2 Midterms:	2 x 20% = 40 %
Term Project:	30%

Important Dates:

Oct 2 – Midterm 1 (in class)
October 14 – Project proposals due
November 6 – Midterm 2 (in class)
December 2, 4 & 7 – in-class presentations
December 7 – Term project due