

Intro to Biological Thermodynamics
Syllabus
Summer HSSP 2020

Instructors

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Course Objectives

The intention of this course is for students to learn various principles of thermodynamics. The course will cover basics (such as the laws of thermodynamics, work, and energy) and will expand into different applications for these concepts. Students can use these principles to answer relevant biological questions.

Website

Course lectures, documents, and assignments will be posted here:

https://esp.mit.edu/learn/HSSP/2020_Summer/class_docs/13985

Lectures

Lectures will be held each Saturday from July 11 to August 15 via Zoom. Classes run from 12:00pm – 1:00 pm EST. Although lectures cannot be recorded, any associated notes and slides will be posted the day before lecture.

Weekly Schedule

A brief overview of what we will cover during the course:

- Week 1 – Introduction, Basics
- Week 2 – Expansion, Enthalpy, Entropy
- Week 3 – The Laws of Thermodynamics, Calorimetry, Phases
- Week 4 – Statistical Mechanics
- Week 5 – Binding and Forces
- Week 6 – Applications

Grades and Assignments

No assignments or coursework are graded but are strongly encouraged. Assignments in this class include in-class problems and optional supplemental problems.

In-Class Problems

At the end of every lecture, students will complete a few problems to practice material learned. Solutions will be discussed and posted to the class website.

Optional Supplemental Problems

Problems to further practice concepts will be posted to the website with their solutions. These problems are STRICTLY OPTIONAL and will NOT be discussed in class unless specifically requested.