

Name:

Signature:

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Uni:

**Quantitative Physiology I / Molecular and Cellular Systems BMEN E4001x / FA25
Midterm Exam 1**

Exam instructions:

- Please report your answers on these pages.
- Do not use the backside of the pages for answers.
- A blank page is included after each long-response section. Please use for any additional work you wish on that problem.
- Draw a box around your final answers.
- For restroom breaks, only one student per room at any one time.

Statement of individual work:

By placing your name, UNI, and signature at the top of this page, you attest that this work represents your individual efforts, in compliance with the academic honesty guidelines established for this university and this exam.

Some Useful Constants:

N_A = Avogadro's Number = 6.02×10^{23} molecules/mole

σ_{O_2} = solubility of oxygen in aqueous solution = 1.4×10^{-6} M/mmHg

k_B = 1.38×10^{-23} J/K

Unit conversions

$1 \text{ m}^3 = 1000 \text{ L}$

$1 \text{ J} = 1 \text{ kg} \cdot \text{m}^2/\text{s}^2$