

BIOPHYSICS: Biofilms and Diffusion

This module was developed by Professors Vernita Gordon and Alexandra Eusebi, at the University of Texas, Austin, with funding provided by the National Science Foundation, Division of Civil, Mechanical, and Manufacturing Innovation, award number 1727544, to Vernita Gordon.

If you use any part of this module, please send an email describing your experience to Professor Gordon, gordon@chaos.utexas.edu. Please include the approximate number of students taught. Documenting the use and effectiveness of this module will help us to obtain more funding for outreach and education in the future.

Electronic files available with this module:

BIOFILMS	
Lesson Plans	<ul style="list-style-type: none">• PART 1 Biofilms
Handouts	<ul style="list-style-type: none">• PART 1 Biofilms with Background Info• PART 1 Biofilms with Fill in the Blank
Slides	<ul style="list-style-type: none">• PART 1 Biofilms

DIFFUSION & DIFFUSION CONSTANT	
Lesson Plans	<ul style="list-style-type: none">• PART 2 Diffusion and the Diffusion Constant
Handouts	<ul style="list-style-type: none">• PART 2 Diffusion and the Diffusion Constant
Slides	<ul style="list-style-type: none">• PART 2 Diffusion and the Diffusion Constant

Diffusion of Antibiotics	
Lesson Plans	<ul style="list-style-type: none">• PART 3 Diffusion of Antibiotics• PART 3 EXTENSION Using the Diffusion Constant to Estimate Molecular Weight of Antibiotics
Handouts	<ul style="list-style-type: none">• PART 3 Diffusion of Antimicrobials• PART 3 Extension Using the Diffusion Constant to Estimate Molecular Weight of Antibiotics
Slides	<ul style="list-style-type: none">• PART 3 Antibiotic Resistance• PART 3 Bioprospecting• PART 3 Diffusion of Antibiotics and Estimating Molecular Weight
Supplemental Materials	<ul style="list-style-type: none">• Kaushik KS, Kessel A, Ratnayeke N, Gordon VD (2015) A Low-Cost, Hands-on Module to Characterize Antimicrobial Compounds Using an Interdisciplinary, Biophysical Approach. PLoS Biol 13(1): e1002044. https://doi.org/10.1371/journal.pbio.1002044

LESSON PLAN:

BIOPHYSICS: Biofilms and Diffusion

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| | <ul style="list-style-type: none">• More information and in-depth presentation on bioprospecting to discover new antimicrobials from The Open University (United Kingdom): https://www.open.edu/openlearn/ocw/mod/oucontent/view.php?id=75701&section=7• Scientific editorial on bioprospecting more broadly: Tanner, Vilanova, and Procar (2017) Bioprospecting challenges in unusual environments. <i>Microbial Biotechnology</i> 10(4):571-673. https://doi.org/10.1111/1751-7915.12723 |
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