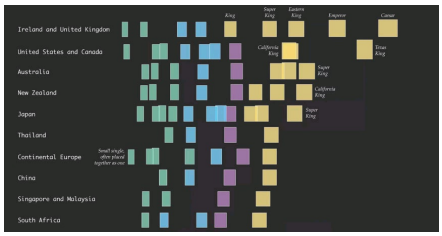
Community Spotlight

Each Community Spotlight features an outstanding group, partner, resource, or member of our community.

Figure of the Day (Version 1.0)

By Arietta Fleming-Davies and Jeremy M Wojdak



Module Description:

Math anxiety can prevent students from engaging with and solving problems even when they have the requisite knowledge or skills. Interpreting graphs in particular can be difficult for many students because understanding visual data is not a formulaic process - there isn't a single set of steps that always work, like there might be for solving a quadratic equation.

"Figure of the Day" is a clever approach to help students learn to interpret graphs that avoids inducing anxiety in students by establishing from the outset that students will not have all the information necessary to be 100% correct. Graphs are presented without axes labels or legends, and interpretation is turned into a puzzle, where any observation about the data is potentially helpful. What results is that students look much more carefully at all the details of a graph - the colors, sizes, shapes, arrangement, magnitude, and try to piece together a story. This is exactly what experienced scientists do, much more often than starting with a figure legend, for example. Different students will notice different features, and the value of multiple student voices is often really evident - small groups or a class can together often uncover the meaning of a graph even without the axes labels!

Figure of the Day can be used at the beginning of each class period, taking 5 minutes or less. Professional scientists didn't learn how to interpret data in an afternoon, but instead from reading 100s of papers. Students need the same repetition. Figures in the collection are roughly ordered by difficulty. The notes section for each figure gives the instructor some ideas for potential student responses or interesting features of the graphs. Also see our collection of community-contributed Figures of the Day on various biology and quantitative themes, and please contribute your own favorite figure!

Teaching Setting:

This activity could be used in any course where comfort with quantitative skills is important.

QUBES Citation:

Fleming-Davies, A., Wojdak, J. M. (2018). Figure of the Day. BIOMAAP: Biology Student Math Attitudes and Anxiety Program, QUBES Educational Resources. doi:10.25334/Q4M13D

Visit Resource

Related Materials and Opportunities:

Click on the "Adaptations" tab when viewing the full record for this resource and you'll find two adaptations of this resource: *Figure of the Day: Disease version*, in which all figures show data on infectious disease, and *Figure of the Day - Ecology additions*, which was designed for use in an Introduction to Ecology/Evolution/Physiology class. You may also want to check back soon because additional adaptations of this resource are currently in development.

This module was developed by Biology Student Math Attitudes and Anxiety Program (BIOMAAP). BIOMAAP aims to help undergraduate biology majors improve their attitudes and decrease their anxiety towards mathematics, and thus to help faculty teach quantitative topics in biology. Browse more resources from BIOMAAP here.

BIOMAAP is offering a Faculty Mentoring Network (FMN) running from January– June 2019 for faculty interested in alleviating math anxiety in undergraduate biology students. This is one of several modules that participants will be exploring during the FMN. If you are interested in learning more about how math attitudes can impact Biology students and would like to explore a range of tools to address math attitudes and anxiety in Biology courses, apply to the BIOMAAP FMN. Hurry! The application deadline is **Dec. 1, 2018**. Visit https://qubeshub.org/groups/biomaapfmn2019 for more details or to apply.

Browse all upcoming FMNs here.

Learn more about QUBES FMNs here.

This resource was nominated for the ROW by a professor at the University of Richmond. If you would like to nominate a QUBES resource for the ROW, please send your nominations to Elia Crisucci at emc22 "at" pitt.edu. It is helpful if you include a short description of why you think the resource should be featured as a ROW.