SCIENCE FOR POLICYMAKERS

By

RACHEL LYNN MINER

_____

A Thesis Submitted to The W.A. Franke Honors College

In Partial Fulfillment of the Bachelors degree
With Honors in

Molecular and Cellular Biology

THE UNIVERSITY OF ARIZONA

DECEMBER 2 0 2 2

Approved by:

_____

Professor Lisa Rezende
Department of Molecular and Cellular Biology

Abstract

It is all too common for politicians and policymakers to be confronted with decisions on scientific topics that they know little to nothing about. This project seeks to help create resources for politicians and policymakers about cancer biology and genetic testing as well as establishing a format for future resources to follow.

This project focused on Lung, Skin, and Childhood cancer as well as Cystic Fibrosis, Down Syndrome, and Familial Hypercholesterolemia. These topics were chosen as they have either seen recent vast improvements such as the Elexacaftor–Tezacaftor–Ivacaftor treatment for Cystic Fibrosis or could be significantly helped by policy initiatives such as Skin Cancer.

Included within this project are 8 scientific article briefs from journals such as Nature, 3 topic summaries on Cystic Fibrosis, Down Syndrome, and Familial Hypercholesterolemia, a resource containing all the definitions of terms covered throughout the project, 2 10-minute videos covering the basic concepts in genetics and cancer biology, and the template that was used to create the scientific article briefs. These materials have been compiled into a free, publicly available website for all to use at the link below.

https://scienceforpolicymakers.com/

Artist Statement

During my time at the University of Arizona I've had the privilege to study Molecular and Cellular Biology in conjunction with Law. This has given me a unique perspective both on the way that scientists perceive the law and the way that law scholars perceive scientists. Perhaps the most interesting thing that I've noticed is that scientists believe that the law is complex and obscure just as much as law scholars believe that science is complex and obscure. However, while the internet has plenty of law case briefs that are intelligible by the average person, scientific papers lack a sufficient equivalent.

Some scientists may argue that scientific papers have an equivalent to a law brief via their abstract. While I do believe that the abstract is a useful part of many papers, it can often be obstructively dense and loaded with high-level terminology that renders its reading more of an exercise in googling than understanding. Therefore, I wanted to create self-contained, law-brief style documents, that anyone could read to understand a current scientific paper. While I knew that some finesse would be sacrificed to use commonly understandable definitions and examples, I strongly felt that for my audience this limited understanding would far surpass the complete lack of understanding that they would otherwise have of these issues. Finally, I wanted to make my briefs short (1-2 pages) so they would be easily readable by policymakers prior to an important meeting or vote.

While I am proud of the products I made for this project on their own, I am far more proud of the proof of concept that they represent together. The 8 research article briefs represent the capacity of articles from a range of complexities to be adapted into the same accessible format. Additionally, the 3 topic summaries demonstrate a way to give readers a far deeper understanding of topics that they've previously only heard about

in passing, so that they can go on to understand the developments being made in those areas. Finally, the videos confirm my own ability to convey the building blocks of vast topics in a concise time frame. As a whole, the website is a demonstration of how even the most complex science can be communicated to the typical scientifically uneducated policymaker so they can make more informed policy decisions.

Although the submission of my Honors Thesis concludes this phase of the project, I hope to add onto this website as I continue to read and learn about scientific topics and as research continues to advance. It is my hope that someday one of my briefs could be in a policymaker's binder and be the difference between them dismissing or accepting a proposition out of hand or beginning a discussion on the scientific pros and cons of that proposition.