CH221 Diversity of Contributions

Thinking about the word "diversity," most of us likely picture the physical differences amongst people. The author of an article published in 2014 in Scientific American discusses what diversity is for STEM fields and why it matters (<u>Scientific American</u>.) He describes that diversity in science concerns the talent of the workforce and expands inclusion of excellence in these fields. These aspects of diversity can lend itself to better problem-solving, more innovation, and economic growth over the long term. View this article from

The diversity above is more focused on work environments, some of which you may consider as you graduate with your STEM degree. However, the concepts and theories that we will study over the next year in chemistry, biology, physics, engineering, or math were all developed by someone working in a public or private lab or higher education research center. Keep in mind that everyone working in a lab also attended higher education. Historically, affluent, white males have been the dominant culture of STEM fields and have been granted the privilege of constructing many of the resources and concepts we still use.

I am not seeking to disparage these achievements, but I believe that every person brings unique experiences and skills to solve a problem. I would like for you to find a scientist, researcher, inventor, or the like that may be overlooked by the dominant culture. Maybe there were personal reasons this person was overlooked as having major contributions to the STEM fields. Maybe there were biased reasons based on gender or religion. Maybe they are not overlooked, but most textbooks only focus on the BIGGEST contributions. Maybe the theories they are working on are too new to find themselves in texts used at the foundational level.

In this assignment, you have an opportunity to identify one aspect of your personal diversity and consider its overlap within someone in STEM. The following are examples of the personal descriptions that make you a diverse member of this class:

- Age and Gender
- Sexual Orientation
- Culture/Nation of Origin

- Race
- Religion
- Physical or Mental ability

Look up some scientists, researchers, inventors, etc. and find someone different than you, but also share one diversity trait and learn about what they contributed to STEM. The work does not need to be "ground-breaking", but relevant enough to find information on it. You are not expected to be an expert, but do not write about things you do not understand – I can tell if you do!

You have options for how the information will be turned in:

- Write a paper: 2-3 pages, 1.5 x-spaced 12-point font
- Make a video and explain it to me: 3-5 mins
- Create a PowerPoint (5-7 slides) or other Multimedia

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• Produce a brochure, poster, or other artistic representation

In addition to clearly describing their contribution(s) to STEM, give some context to the problem they worked on and why it is relevant. Be sure to also mention what the overlap in diversity traits is to you. Use at least 2 different sources with MLA citations.

The list of scientists below, mostly physics and chemists, is not an exclusive list, and so you can find someone whose name is not on this list, so long as their work is related to STEM.

- Isamu Akasaki
- Al-Khwarizmi
- Virginia Apgar
- Frances Arnold
- Frederick Balagadde
- Alice Augusta Ball
- Daniel Bernoulli
- Ludwig Boltzmann
- Edward Bouchet
- Ralph Braun
- Johannes Nicolaus Brønsted
- Ron Buckmire
- Robert Wilhelm Bunsen
- Rachel Carson
- George Washington Carver
- Subrahmanyan Chandrasekhar
- Emmett Chappelle
- Angela Clayton
- Marie Curie
- Marie M. Daly
- Paul Dirac
- James Dewar
- Cheick Modibo Diarra
- Emilie du Châtelet
- Sherien Elagroudy
- Leo Esaki
- Bisi Ezerioha
- Michael Faraday
- Enrico Fermi
- Richard Feynman
- Rosalind Franklin
- Kenichi Fukui
- Temple Gradin
- Walter Lincoln Hawkins
- Werner Karl Heisenberg
- Mario José Molina Henríquez
- Dorothy Hodgkin
- Hypatia of Alexandra
- Jabir Ibh-Hayyan

- Garik Israelian
- Percy Julian
- Katherine Johnson
- Gustav Kirchhoff
- Edwin Krebs
- Gilbert N. Lewis
- Antoine Lavoisier
- Marie Anne Paulze (Lavoisier)
- Richard Leakey
- Nergis Mavalvala
- Lise Meitner
- Andrés Manuel del Río
- Catherine J. Murphy
- John von Neumann
- Isaac Newton
- Seiji Ogawa
- J. Robert Oppenheimer
- Francisca Nneka Okeke
- Louis Pasteur
- Wolfgang Pauli
- Linus Pauling
- Clarice Phelps
- Max Planck
- Sir William Ramsay
- Venki Ramakrishnan
- Jemma Redmond
- Geraldine L. Richmond
- Abdus Salam
- Aziz Sancar
- Carl Wilhelm Scheele
- Glenn Seaborg
- Gábor A. Somorjai
- Donna Strickland
- Alan Turing
- Nikola Tesla
- Arieh Warshel
- Gladys West
- Michael Stanley Whittingham

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- Ada Yonath
- Akira Yoshino
- Tu Youyou

• Ahmed Zewail