Empowering Future-Ready Graduates: Cultivating Scientific Thinking in the Age of Misinformation

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Abstract

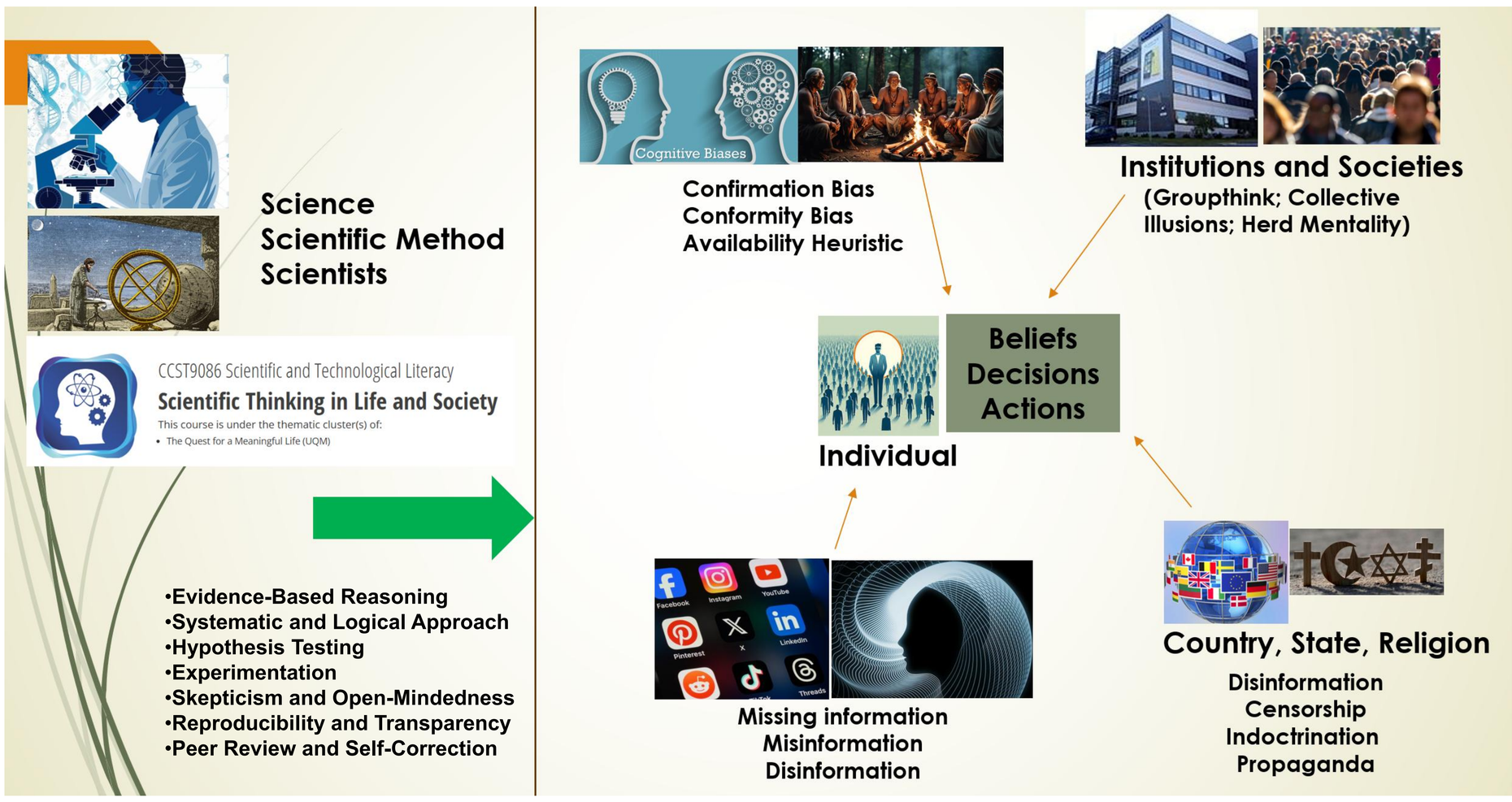
In an era dominated by rapid information exchange, social media influence, and pervasive misinformation, the ability to think scientifically has never been more critical. Scientific thinking—rooted in evidence, experimentation, humility, and continuous improvement—equips students with the intellectual tools to navigate uncertainty, challenge assumptions, and make informed decisions. This presentation introduces the Common Core course Scientific Thinking in Life and Society (CCST9086), designed to foster these essential skills among undergraduate students from diverse disciplines.

The course emphasizes the principles of critical inquiry, skepticism, and evidence-based reasoning, enabling students to identify and mitigate cognitive biases that often distort judgment. Through interactive lectures, case studies, and real-world applications, students learn to evaluate the reliability of information sources, distinguish science from pseudoscience, and apply systematic problem-solving to complex societal issues. Topics such as misinformation in the digital age, climate change debates, and healthcare controversies provide authentic contexts for developing these competencies.

Beyond academic enrichment, the course prepares students for the workplace and civic life by cultivating transferable skills—analytical reasoning, effective communication, and collaborative problem-solving—that are indispensable in a knowledge-driven economy. By the end of the course, students not only understand the scientific method but also embrace intellectual humility and adaptability, recognizing that progress often stems from revising beliefs in light of new evidence.

This session will share the pedagogical strategies, assessment design, and experiential learning activities that make scientific thinking both accessible and engaging. It will also explore how these approaches empower students to become discerning consumers of information and responsible global citizens—skills that extend far beyond the classroom into their professional and personal lives.

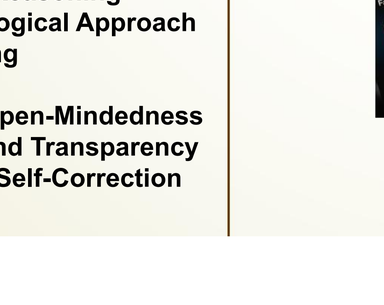
Why do We Need Scientific Thinking?

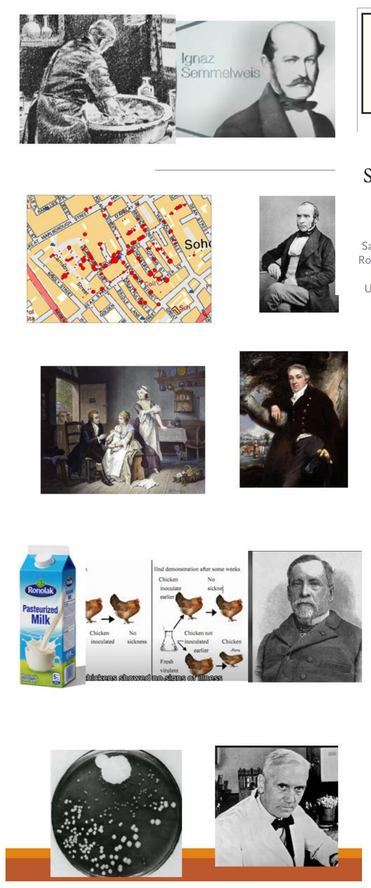


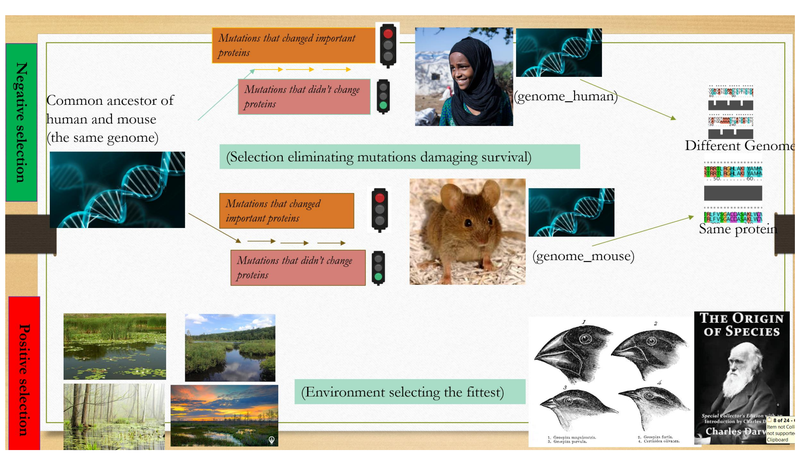
We learn from real-world examples!

Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine

Fernando P. Polack, M.D., Stephen J. Thomas, M.D., Nicholas Kitchin, M.D., Judith Absalon, M.D., Alejandra Gurtman, M.D., Stephen Lockhart, D.M., John L. Perez, M.D., Gonzalo Pérez Marc, M.D., Edson D. Moreira, M.D., Cristiano Zerbini, M.D., Ruth Bailey, B.Sc., Kena A. Swanson, Ph.D., Satrajit Roychoudhury, Ph.D., Kenneth Koury, Ph.D., Ping Li, Ph.D., Warren V. Kalina, Ph.D., David Cooper, Ph.D., Robert W. Frenck, Jr., M.D., Laura L. Hammitt, M.D., Özlem Türeci, M.D., Haylene Nell, M.D., Axel Schaefer, M.D., Serhat Ünal, M.D., Dina B. Tresnan, D.V.M., Ph.D., Susan Mather, M.D., Philip R. Dormitzer, M.D., Ph.D., Uğur Şahin, M.D., Kathrin U. Jansen, Ph.D., and William C. Gruber, M.D., for the C4591001 Clinical Trial Group*







$$P(B/A) = \frac{P(A/B) \times P(B)}{P(A)}$$

We trust science for its method and mindset. Scientific thinking helps us become thoughtful, skeptical, open-minded, and empathetic citizens in a complex world.

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