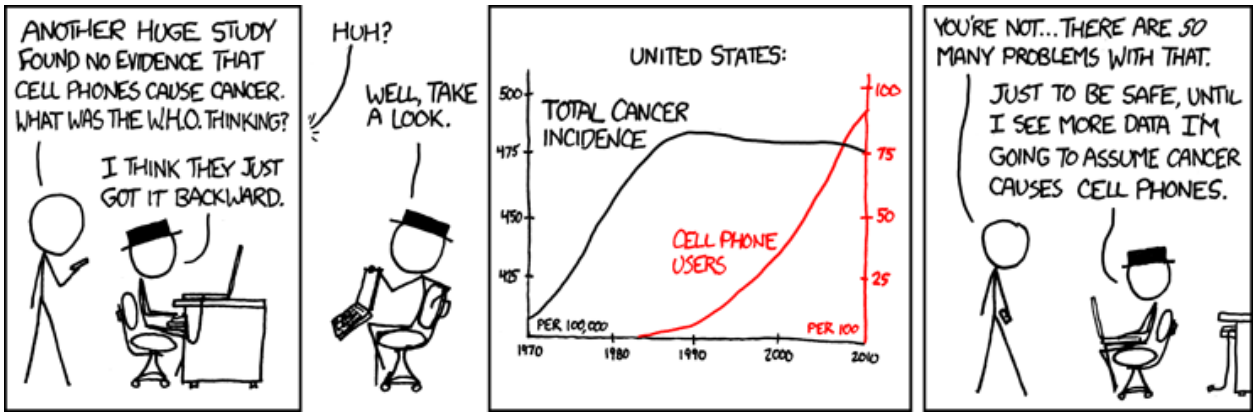
Confronting Health Misinformation (BSCI339X)



Source: https://xkcd.com/925/

Term: Winter 2027
Credits: 2
Course Dates: Jan 5, 2027 - Jan 22, 2027
Course Times: 9:30am - 12 noon (Tu-Wed-Thurs-Fri)
Classroom: Online (Zoom link:)

Instructor: Dr. Tapan Goel **Pronouns:** he/him **Email:** tgoel36@umd.edu **Office hours:** TBD	**Instructor:** Dr. Julie Pourtois **Pronouns:** she/her **Email:** juliedp@umd.edu **Office hours:** TBD

Course description

Health misinformation ranges from innocuous claims about the benefits of juice cleanses to dangerous falsehoods about well-established vaccination programs. This misinformation often comes couched in buzz words, statistics, and visualizations to create an illusion of rigor and legitimacy that can be hard to spot and refute. The aim of this course is to teach you quantitative reasoning tools and common data manipulation techniques so that you can identify and confront misinformation, especially in the context of healthcare. You will learn these skills through a combination of lectures and

hands-on activities where you will apply these tools to case studies drawn from social media, advertisements and other sources.

Learning Outcomes

The goal of this course is to ultimately help you become a discerning consumer of information, especially when it comes to information about healthcare and medicine. By the end of this course you will be able to:

1. Identify what kinds of data are relevant to support or refute claims in medicine and healthcare. Eg. What information do you actually need to know to decide whether a vaccine is safe or not?
2. Apply quantitative reasoning to interpret biological, medical and nutritional data in context. e.g. Is “99.9% caffeine-free” cocoa powder good?
3. Argue why a visualization or graph used in communication about health care is misleading.
4. Evaluate the plausibility of information generated by commonly used generative AI tools.
5. Provide an accessible and persuasive explanation for why and how a piece of information is misleading.

Required Resources

Course Website: elms.umd.edu

Required text: Calling Bullshit: The Art of Skepticism in a Data-Driven World (Check course reserves, copies can also be bought for ~$20 through the bookstore).

Recommended Readings

1. Alberto Cairo (2019) *How Charts Lie: Getting Smarter about Visual Information*. W.W. Norton and Company.
2. Edward Tufte (1983) *The Visual Display of Quantitative Information*.
3. callingbullshit.org
4. https://thebullshitmachines.com/

Additional reading resources will be added through ELMS Canvas.

Course Outline

Week	Class #	Topic
1	1	**Introduction**
	2	**Numbers in Context**
	3	**Numbers in Context/ Guest Speaker**
	4	**Numbers in Context - Stats**
2	5	**Causation and Study design**
	6	**Data visualization**
	7	**Data visualization / Guest Speaker**
	8	**Data visualization**
3	9	**Selection bias**
	10	**AI – Data in and data out**
	11	**AI tools/ Guest Speaker**
	12	**Student presentations**

Note: This is a tentative schedule, and subject to change as necessary – monitor the course ELMS page for current deadlines. In the unlikely event of a prolonged university closing, or an extended absence from the university, adjustments to the course schedule, deadlines, and assignments will be made based on the duration of the closing and the specific dates missed.

Major Assignments & Grading

1. **Participation & Engagement:**
    a. 10% Attendance
    b. 10% Engagement
2. **Quizzes:**
    a. One quiz per class, excluding student presentations. The lowest grade is dropped.
3. **Reflection paper**
    a. 6 reflection papers on classes of your choice. The lowest grade is dropped.
    b. Each reflection paper should be 1 page (400-500 words).
4. **Misinformation logbook:**

    a. Keep a log of health claims you encounter on social media, in the news, advertisements and other sources.
5. **Final Project /Presentation**:
    a. Assess one health claim from the log.

Assignment	**Percentage %**
Participation (Attendance and engagement)	**20% (2% each class)**
Quizzes	**20% (2% each)**
Reflection papers	**25% (5% each)**
Misinformation logbook	**15% (5% each week)**
Final Project	**20%**
Total	**100%**

Note: This list of assignments and grading structure is tentative. A final list of assignments and grade breakdown will be announced on the first day of class and updated on ELMS accordingly.

Academic Integrity

The University's Code of Academic Integrity is designed to ensure that the principles of academic honesty and integrity are upheld. In accordance with this code, the University of Maryland does not tolerate academic dishonesty. Please ensure that you fully understand this code and its implications because all acts of academic dishonesty will be dealt with in accordance with the provisions of this code. All students are expected to adhere to this Code. It is your responsibility to read it and know what it says, so you can start your professional life on the right path. **As future professionals, your commitment to high ethical standards and honesty begins with your time at the University of Maryland.**

It is important to note that course assistance websites, such as CourseHero, or AI-generated content are not permitted sources unless the instructor explicitly gives permission. Material taken or copied from these sites can be deemed unauthorized material and a violation of academic integrity. These sites offer information that might be inaccurate or biased and most importantly, relying on restricted sources will hamper your learning process, particularly the critical thinking steps necessary for college-level assignments.

Additionally, students may naturally choose to use online forums for course-wide discussions (e.g., Group lists or chats) to discuss concepts in the course. However, collaboration on graded assignments is strictly prohibited unless otherwise stated. Examples of prohibited collaboration include: asking classmates for answers on quizzes or exams, asking for access codes to clicker polls, etc. Please visit the Office of Undergraduate Studies' full list of campus-wide policies and reach out if you have questions.

Finally, on each exam or assignment you must write out and sign the following pledge: ***"I pledge on my honor that I have not given or received any unauthorized assistance on this exam/assignment."*** If you ever feel pressured to comply with someone else's academic integrity violation, please reach out to me straight away. Also, ***if you are ever unclear*** about acceptable levels of collaboration, ***please ask***!

Tips for Success in this Course

- **Participate.** I invite you to engage deeply, ask questions, and talk about the course content with your classmates. You can learn a great deal from discussing ideas and perspectives with your peers and professor. Participation can also help you articulate your thoughts and develop critical thinking skills.
- **Manage your time.** Students are often very busy, and I understand that you have obligations outside of this class. However, students do best when they plan adequate time that is devoted to course work. Block your schedule and set aside plenty of time to complete assignments including extra time to handle any technology related problems.
- **Login regularly.** I recommend that you log in to ELMS-Canvas several times a week to view announcements, discussion posts and replies to your posts. You may need to log in multiple times a day when group submissions are due.
- **Do not fall behind.** This class moves at a quick pace and each week builds on the previous content. If you feel you are starting to fall behind, check in with the instructor as soon as possible so we can troubleshoot together. It will be hard to keep up with the course content if you fall behind in the pre-work or post-work.
- **Use ELMS-Canvas notification settings.** Pro tip! Canvas ELMS-Canvas can ensure you receive timely notifications in your email or via text. Be sure to enable announcements to be sent instantly or daily.
- **Ask for help if needed.** If you need help with ELMS-Canvas or other technology, IT Support. If you are struggling with a course concept, reach out to me and your classmates for support.

Policies and Resources for Undergraduate Courses

It is our shared responsibility to know and abide by the University of Maryland's policies that relate to all courses, which include topics like:

- Academic integrity
- Student and instructor conduct
- Accessibility and accommodations
- Attendance and excused absences
- Grades and appeals
- Copyright and intellectual property

Please reference and review the Office of Undergraduate Studies' Course-Related Policies and follow up with me if you have questions.

Course Guidelines

Names/Pronouns and Self-Identifications:

We invite (and encourage) you to tell the class how you want to be referred to, both in terms of your name and your pronouns. Keep in mind that the pronouns someone uses are not necessarily indicative of their gender identity. For more information about names and gender markers, visit the LGBTQ+ Equity Center.

We also want you to feel empowered to share or withhold parts of your identity as you see fit. We will do our best to address and refer to all students accordingly, and we ask you to do the same for all of your fellow Terps.

Communication with Instructors:

Email: If you need to reach out and communicate with me, please email both of us. Please DO NOT email us with questions that are easily found in the syllabus or on ELMS (i.e. When is this assignment due? How much is it worth? etc.) but please DO reach out about personal, academic, and intellectual concerns/questions.
While we will do our best to respond to emails within 24 hours.

ELMS: We will send IMPORTANT announcements via ELMS messaging. You must make sure that your email & announcement notifications (including changes in assignments and/or due dates) are enabled in ELMS so you do not miss any messages. You are responsible for checking your email and Canvas/ELMS inbox with regular frequency.

Communication with Peers:

With a diversity of perspectives and experience, we may find ourselves in disagreement and/or debate with one another. As such, it is important that we agree to conduct ourselves in a professional manner and that we work together to foster and preserve a virtual classroom environment in which we can respectfully discuss and deliberate controversial questions. I encourage you to confidently exercise your right to free speech—bearing in mind, of course, that you will be expected to craft and defend arguments that support your position. Keep in mind, that free speech has its limit and this course is NOT the space for hate speech, harassment, and derogatory language. I will make every reasonable attempt to create an atmosphere in which each student feels comfortable voicing their argument without fear of being personally attacked, mocked, demeaned, or devalued.

Any behavior (including harassment, sexual harassment, and racially and/or culturally derogatory language) that threatens this atmosphere will not be tolerated. Please alert me immediately if you feel threatened, dismissed, or silenced at any point during our semester

together and/or if your engagement in discussion has been in some way hindered by the learning environment.