



Topic
Better Living

Subtopic
Personal Development

Fighting Misinformation

Digital Media Literacy

Course Guidebook

With Tara Susman-Peña, Mehri Druckman,
and Nina Oduro





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Tara Susman-Peña leads the adaptation and expansion of Learn to Discern, IREX's media literacy methodology, in the United States and other countries. She trains participants and trainers on how to fight misinformation through Learn to Discern, and she also covers other topics such as audience research. She taught at the George Washington University Elliott School of International Affairs and has lectured widely at institutions such as Georgetown University, Columbia University, the Organisation for Economic Co-operation and Development, the National Endowment for Democracy, and the United Nations Educational, Scientific and Cultural Organization.

Ms. Susman-Peña has presented at many international conferences on topics including disinformation; the role of media, information, and innovation in governance, development, and resilience; measuring complex information systems; aid effectiveness; and research methods. At IREX, she has facilitated media development projects in Mozambique, Latin America, and Eurasia. ■



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Mehri Druckman is a media literacy and training development expert who combines deep knowledge of antipropaganda programming, effective media support, community engagement, and the application of technology to improve development outcomes with field-tested training methodologies. In 2015, she designed and managed IREX's innovative Learn to Discern project, a citizen media literacy initiative that reached more than 15,000 Ukrainians. Learn to Discern has since been featured in *The New York Times*, *The Washington Post*, *The Christian Science Monitor*, *The Wilson Quarterly*, the World Economic Forum's Global Agenda, *Project Syndicate*, *Columbia Journalism Review*, and in reports by the Center for European Policy Analysis and the Legatum Institute.

A skilled facilitator and trainer accustomed to operating in rapidly changing political and social environments, Ms. Druckman is a leader in IREX's global efforts to build resilience against misinformation and disinformation. She is also a leader in IREX's efforts to apply global information, communications technology, and new media toward individual and organizational capacity building, community development, public access to information, and citizen engagement. ■



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Nina Oduro develops and facilitates training for young leaders, educators, and community organizers. She is currently a lead trainer for IREX's Learn to Discern US initiative and supports curriculum design and delivery alongside IREX's partners. Ms. Oduro developed IREX's first comprehensive training guide, drawing on 50 years of the organization's experience with training as well as industry best practices. Using the guide to support training-skills development throughout IREX, she built a cadre of expert trainers around the world. She has provided technical training support to various programs.

Ms. Oduro began her career in youth leadership development and training at Columbia University, the Posse Foundation, and the United States Embassy in Accra, Ghana, where she advised and trained young leaders for academic success and positive individual and community impact. As a learning consultant with Microsoft, she developed and facilitated training for US-based educators in K-12 schools that enabled them to effectively leverage technology to achieve positive learning outcomes. ■

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FIGHTING MISINFORMATION

DIGITAL MEDIA LITERACY

We live in the information age. Globally, the total current output of data is roughly 2.5 quintillion bytes, or the equivalent of the content of the Library of Congress 250,000 times over, each day. Adults in the United States today spend an average of 11 hours per day interacting with media.

As individuals, we have remarkable access to information as well as the power to produce and disseminate it. Unfortunately, the web of communications technologies that provides access to all kinds of information also makes it ever easier for falsehoods, slander, prejudices, and bad ideas to travel much faster and farther than ever before. That's a direct threat to all of us and to democracy, which depends on a well-informed electorate to reach good decisions.

This course is designed to help you identify misinformation, blunt its effects on you, and prevent it from spreading. It is based on the Learn to Discern (L2D) methodology that IREX, a global nonprofit organization, developed in 2015 in Ukraine to help citizens detect and fight Kremlin propaganda that was spreading throughout the information ecosystem.

Since that time, as misinformation has increased as a global problem, IREX has continued to build media literacy skills through L2D in Ukraine, the US, and about a dozen other countries. L2D is practical, fun, easy to use and to teach to others, and specifically designed for the complex digital information age we live in. Research studies have shown that it is effective in building resilience to misinformation that holds up over time.

This course provides key background on the information age that we live in. The course outlines how journalism has changed as it confronts the digital age and why this impacts our ability to access reliable, factual information. Additionally, the course delves into various ways that information can be manipulated and why the wiring of our brains makes us susceptible to manipulative information.

The course also teaches practical skills, including a technique to assess information consumption, tools and skills for visual and textual verification, and a powerful method to resist having your rational brain hijacked by provocative content.

Later, the course takes a special look at how to better assess science and health news. The course ends by looking toward the future at the evolving types of manipulative content you might face. Additionally, the back of this guidebook contains information on several tools you can use in your fight against misinformation.

This course will leave you empowered with a critical perspective on misinformation and how it functions in society today, and an understanding of the range of tools and tactics you can use to fight it. ■

The background features a complex pattern of diagonal stripes in various colors including teal, orange, yellow, pink, and blue. A person's face is partially visible through the stripes, looking towards the camera.

LECTURE 1

THE MISINFORMATION THREAT

Misinformation can travel quickly through communities that don't have strong enough protections in place, causing very real-world harm. Unfortunately, there is nothing as straightforward as a vaccine to protect people from the dangers of misinformation. It takes more than one simple action. It takes awareness, focus, and skill-building. However, it is possible to build up resilience to the dangers of misinformation.

DEFINING TERMS

The term *misinformation* simply refers to incorrect or misleading information, while *disinformation* is information that is false and deliberately created to cause harm. Because it can be hard to identify what the intent was of the person who created a piece of information, it's generally more accurate to use the word *misinformation* as an umbrella term.

Claire Wardle of First Draft media, an organization devoted to combatting what it calls information disorder, came up with a useful taxonomy of misinformation that identifies seven types of “problematic content.” This framing, which follows, can be helpful.

- ◆ **Satire or parody**, which has no intention to cause harm but has potential to fool.
- ◆ **False connections**, which occur when headlines, visuals, or captions don't support the content.
- ◆ **Misleading content**, which involves the misleading use of information to frame an issue or individual.
- ◆ **False context**, which is when genuine content is shared with false contextual information.
- ◆ **Imposter content**, which is generated when genuine news sources are impersonated.
- ◆ **Manipulated content**, which is generated when genuine information or imagery is manipulated to deceive.
- ◆ **Fabricated content**, which is new content that is entirely false and designed to deceive and do harm.

This taxonomy makes it clear that the world of misinformation is complex and nuanced. More often than not, true elements mix with false elements to create a confusing and powerful piece of misinformation.

There are two additional points that go beyond Wardle's taxonomy. The first is hate speech, which can fall into any of these types of content. Hate speech is bigoted content that attacks a person or identity group based on that identity, whether it involves race, ethnicity, gender, sexual orientation, or other attributes.



Additionally, there is a further distinction to be made between propaganda and disinformation, both of which can contain elements from several of Wardle's categories. Propaganda is crafted with the intent to persuade people of a particular idea or point of view. This contrasts with disinformation, which involves deliberate falsehoods intended to cause harm.

WIDESPREAD HARM

People spend much of their time interacting with media, but that does not mean that people have the critical skills to analyze and understand it. One well-known study from Stanford University in 2016 demonstrated that youth are easily fooled by misinformation, especially when it comes through social media channels.

This weakness is not found only in youth, however. Research from New York University found that people over 65 shared seven times as much misinformation on Facebook as their younger counterparts.

All of this raises a question: What's the solution to the misinformation problem? Governments and tech platforms certainly have a role to play in stemming the tide of misinformation. However, every individual needs to take responsibility for combating this threat by becoming more information literate.

EXERCISE: MEDIA LITERACY

To help you start building your media literacy muscles, the following exercise is designed to raise your awareness of how your media environment shapes your perceptions.

Take out a piece of paper and a pen or open the notes app on your phone. Alternatively, you can just think through this exercise. List of all the media that you use or take in during your daily life, and when. For example, maybe you watch a television show in the morning and listen to a podcast on the way to work.

Also take into consideration factors like checking your email, texting people, and interacting with social media platforms. For instance, do you get sucked into using social media for longer than you intended? The goal here is to try to create a detailed portrait of a typical day—not just what you consume, but also how much time you spend doing it.

Now think about the devices you use regularly to consume the media you prefer. This includes cell phones, computers, tablets, and televisions. You might also use books, magazines, and the car radio. They all compete for your attention and shape your ideas.

Based on what you have found so far, try to add up the total number of hours you spend on media each day. What percentage of your waking hours do you spend using different types of media? Does the result surprise you?

How you choose to spend your time is up to you. But when you consider how pervasive media sources are in your daily life, you can't help but realize that they shape your perspective and define many of the topics you focus on.

Next, ask yourself: How much trust are you placing in the sources of information you use? How much do you really know about the entities that produce the content you are consuming? The sheer quantity of information you are surrounded with can affect your ability to discern its quality.



LECTURE 2

THE **EVOLUTION** OF MEDIA AND **MISINFORMATION**

Thanks to increasingly rapid changes in communications technology, we have vastly more sources of information available to us than previous generations. We can also interact with that information, or generate our own, in ways that used to be impossible. This has important implications for our ability to discern truth from falsehood today.

THE FIRST AMENDMENT

The basis for freedom of expression in the United States is the First Amendment to the US Constitution. It's the foundation for how American news media outlets operate. Among other things, the First Amendment is this country's strongest means of protecting its citizens against censorship.

However, the proliferation of new sources of information on the internet poses a new kind of challenge to the First Amendment's protections. The freedom to share information effectively grants the freedom to share misinformation and disinformation—and that can neutralize important news stories, confuse public discourse, and obstruct effective policy making.

We need reliable reporting—the kind that skillful journalists do. Yet the digital platforms where we get our information make it harder and harder to distinguish journalists from activists, lone individuals with political agendas, and even outright purveyors of disinformation.



STANDARDS OF JOURNALISM

According to the American Press Institute, “Journalism is the activity of gathering, assessing, creating, and presenting news and information. It is also the product of these activities.” News pieces should be made up of facts. Their main point is to inform you.

Journalists sometimes do give their opinions and argue a particular view. A longstanding view in American journalism, however, is that opinion should be kept separate from news, and it should be clearly labeled. Opinion pieces do, naturally, often contain facts as well as opinions. However, these facts aren’t there just to inform you; they’re there to support the opinion. The main point of an opinion piece is to persuade you.

There are various organizations that provide common standards for professional journalists in the United States, and the best journalists and news organizations follow those standards. For instance, the Society for Professional Journalists has developed a code of ethics for journalists that is meant to be universal. The following are four of its key pillars.

- ◆ **Seek the truth and report it:** This principle commits journalists to look for and clearly present important relevant facts. They should give the facts context, explain them well, and derive the facts from original sources. Journalists should also provide as much information about those sources as possible.
- ◆ **Seek to minimize harm:** Journalists strive to present the truth while avoiding harm to individuals.
- ◆ **Act independently:** In the US, independent journalism is the highest standard of journalism. It means that journalists are not paid to specifically report on one point of view or advocate for something unless what they write is very clearly identified as opinion.
- ◆ **Be accountable and transparent:** If a journalist makes a mistake, it is the journalist’s responsibility (and that of his or her news organization) to acknowledge and correct it.

Professional journalism is not infallible, but it makes a sincere and rigorous effort to find and report the truth. Today, however, anyone with digital access can produce or pass on information whether or not they have gone to the effort to verify it or report it fairly, as professional journalistic standards require.

THE MODERN MEDIA LANDSCAPE

Today, the multiplicity of formats means that the media landscape is complex and confusing. Real, credible news may be packaged in formats you may not recognize. The following is a brief rundown of some of the new ways people receive news.

- ♦ **Traditional media reported in multimedia formats.** For example, you might find traditional weather reporting or a local investigative report on a TV channel's website.
- ♦ **News aggregators.** Sites that operate as news aggregators pull news from different sources. It's hard to know when the aggregator is curating content for you based on trends and what you have clicked on in the past.
- ♦ **Traditional media reporting using social media.** An example of this is CNN, a traditional broadcaster, sending out information as short posts on Twitter. Such methods get the stories out to where people are spending their time, but they also make the outlets seem to be on par with everything else on Twitter and Facebook.
- ♦ **Bot reporting.** Bots are a type of app (a software application) that tells computers to do very simple tasks automatically and repetitively (and much faster than a person could do). The drawback is that bot reporting only works for simple things. For instance, a bot cannot write a report that provides context or analysis.
- ♦ **Tweet storms.** A tweet storm uses a series of numbered tweets that are linked in some way to show a narrative.
- ♦ **Social media as sources.** Over time, more and more credible news sources, including traditional media, have begun sourcing stories from social media.
- ♦ **Participatory reporting.** Some outlets have called out directly to their audiences for input. For instance, in 2018, ProPublica and Univision's news arm did direct outreach to its readers in English and Spanish. They asked if people had seen Immigration and Customs Enforcement agents or the border patrol in their communities.

ALGORITHMS

Filter bubbles are a problem for the great majority of Americans who now spend time on social media. This is due to social media algorithms—that is, computer code that makes decisions about what appears in people's feeds based on what they have liked, commented on, and shared. These algorithms are continually refining whose posts people see and what types of content people are exposed to.

Unless people make a conscious decision to seek out new types of content and perspectives other than those they agree with, they may find themselves trapped in a virtual community of only like-minded people. In a democracy that depends on civil debate, free speech, and a rich diversity of perspectives and experiences, this can be a problematic state of affairs.

Algorithms don't only curate and narrow the scope of what you see on social media. They do the same for just about everything you do online, including using news apps and search engines. What your online search turns up depends on your past search history, what you have clicked on, and your overall digital habits.



LECTURE 3

MISINFORMATION AND THE **BRAIN**

Human beings are hardwired to view the world in certain ways that can be traced to the development of our species. For example, the way we judge ideas, how we make decisions, and our motivations to act are fraught with all kinds of biases. These biases are part of what creates efficiencies in how we operate. However, they can be deliberately exploited through the use of misinformation to catch our attention, sway our opinions, or sow doubt and confusion.

COGNITIVE BIASES

If you see something running by at a distance that is small and black and looks like a cat, you will probably decide that it was a cat. It may or may not have been a cat, but you'll stick with your decision unless you learn otherwise. The brain has the ability to fill in gaps in information in that way. This kind of thinking is automatic, and it facilitates the work of the brain.

Much of the time, this kind of automatic gap filling means that the brain does the work of adapting what you perceive in the world to fit into your understanding of reality, which can lead to cognitive biases. One cognitive bias is that when people want to believe in what they hear or read, their brains ignore a large amount of information, focusing only on the information that confirms the prediction.

People also are subject to selective recall. They tend to remember the things that support their point of view and disregard the rest.

Still another problematic tendency of the brain is known as confirmation bias. This is when people search for and notice only the information that confirms their position.



EMOTIONAL REACTIONS

Another hardwired human tendency that plays a key role in how we consume information is our affinity for stories and the emotional reactions that they produce in us. This affinity can draw us in to news stories and compel us to educate ourselves about what is happening in the world. However, it can also make us vulnerable to manipulation.

Keep in mind that the people who create content are often trying to provoke a strong reaction in you. It should be up to you to decide, however, what to do with your reaction. In other words, it is up to you whether and how you act on a piece of information. You can determine whether or not to pass it on. The act of really deciding whether or not to share information has a direct impact on the amount of misinformation or manipulative content in the information ecosystem.

Perhaps the most easily recognizable example of information manipulation is in the use and abuse of headlines. Clicking on a link means that the link has captured your attention, and it potentially has also generated advertising revenue. This is one of the reasons that even credible sources are now designing headlines to provoke strong emotions. Examples of clickbait, or manipulative headlines that provoke curiosity to get your clicks, are everywhere.



Clickbait is just one of many different ways that tech companies have taken the science of manipulation seriously. Tristan Harris of the Center for Humane Technology has identified something that he calls brain hacking. This is technology companies employ to keep people hooked on their devices. In fact, tech companies employ psychologists to inform digital designs that keep people engaged digitally and form habits that are hard to break.

KEY CHARACTERISTICS OF MANIPULATION

There are many other types of content across the internet designed to manipulate your emotions and your actions. You might encounter it in the form of text, video, audio, or images. Some key characteristics of manipulation include the triggering of fear, hurling insults, or employing insinuation, exaggeration, or distraction.

Manipulative content often presents opinions as fact. It also can include facts mixed together with falsehoods, exaggerations, or facts that aren't related but are made to seem so. Manipulation often deploys symbols that play on our emotions (such as the American flag) and utilizes stereotypes. Constant repetition is another manipulative tactic.

BUILDING RESILIENCE

While you can't prevent others from trying to manipulate you through media, you can take some steps to build your resilience to manipulation. Take a minute to identify your emotional reactions. Pausing and developing distance from these reactions can help you better understand the news and media you are seeing. This can help you avoid falling for content that might not be true.

The ability to handle your reactions to emotionally charged material and experiences is an extremely powerful skill. It enables you to buffer yourself against the force of information manipulation. The key idea is to defuse your own immediate emotional response so that you can engage your critical thinking skills.

When you come across any kind of content that provokes a strong reaction in you, try following these steps:

- ◆ First, pause. Close your eyes or turn your head away from the screen or paper.
- ◆ Then, ask yourself: What am I feeling? Put words to the reaction.
- ◆ Finally, say the label that you've given the feeling to yourself.

These make up the framework of a technique called Label to Disable. The distance that you put between yourself and the emotion with these simple steps can help prevent you from reacting impulsively. Once you have gone through all the steps, you can consider whether or how you want to respond to the content you've just encountered.

To help people resist the temptation to forward problematic material to others, IREX's experts recommend using Label to Disable as the first step in a broader procedure called Care before You Share. Once you've named your emotional reaction to the material and taken back your analytical brain, do the following.

1. Take responsibility. Recognize that you are the information gatekeeper. It's up to you not to spread misinformation.
2. Acknowledge what you may not know. Remember that you need to be extra careful with content that appeals to you, supports what you already believe, or provokes a strong reaction in you.
3. If you have time, check it out. Do what you can to verify information.
4. If you're still not sure it's true, don't share it.

If you can remember to follow these steps whenever you encounter highly charged information, you'll help make the information ecosystem a much cleaner and safer place for everyone.

SUGGESTED READING

Ciampaglia, et al., "Biases Make People Vulnerable to Misinformation Spread by Social Media."

Sakuma, "The Bogus 'Momo Challenge' Internet Hoax, Explained."

Steinmetz, "How Your Brain Tricks You into Believing Fake News."

Wehner, "Why People Are Wired to Believe What They Want to Believe."



LECTURE 4

SEEING THROUGH VISUAL MISINFORMATION

The power of social media to make posts go viral often hinges on visuals. They evoke emotional reactions in people—and they are meant to. They can be some of the most insidious information on the internet. This lecture goes over prominent types of visual misinformation.

THREE TYPES OF MANIPULATION

Three common kinds of visual manipulation to beware of are reuse and mislabeling, the photo selection effect, and deliberate alteration or forgery.

Regarding reuse and mislabeling: It is easy to manipulate visual media quickly without using sophisticated digital tools. People can simply download an image and add text to it. Text that labels or describes a picture or video directs people how to see it and can significantly shape perceptions of it. A photograph that is mislabeled can make people perceive something different than what is there.

Selection is another way that imagery can be manipulated. This method involves no modifications at all to the image itself. The photo selection effect is a subtle but powerful phenomenon. Choosing only to use certain photos and not others can misrepresent a situation. It is also possible to jump to the wrong conclusion about isolated photos. Photos can also be selectively cropped, and videos can be selectively edited, leaving a false impression.



Lastly, images that have been deliberately altered or forged are also present on the internet. Many such photos and videos emerge out of current events and breaking news situations, when tensions are high and people are clamoring for information. Forgers are eager to exploit the emotions that people have in response to such events.

To protect yourself from the effects of provocative photos, you can use the Label to Disable technique covered in the previous lecture. Take back your brain by pausing and putting language to any emotions you are feeling before you react to an inflammatory image. That way, you can reengage the rational part of your brain, analyze the situation, and make a choice before you interact with the image.

VERIFYING IMAGES

If you're suspicious about an image that you encounter online, examine it closely. Look for any elements that seem out of place. For instance, do the shadows all point in the same direction, or do some seem inconsistent with others? If there's signage in the photo, what language is it written in? Is it appropriate to the location supposedly shown in the image?

If you decide to check the image out, you can do so using a reverse image. Two tools that can help you do this are Google's reverse image search feature and TinEye. TinEye allows you to compare an image to others like it on the internet to see what may have changed.

Another tool to consider if you want to put some time and analytical work into discerning the truth of visual images is [FotoForensics.com](https://www.fotoforensics.com). After you upload a photo or enter a URL, the site will analyze the photo and can detect places where the photograph may have been tampered with. A final useful tool is InVid, which can help detect video alterations.

CONCLUSION

Many of the photos and videos you see on social media have been reused, sometimes in a way that changes their meaning. People also purposefully alter pictures to spread false information. Keep in mind that Label to Disable is your first line of defense. If an image or video provokes a reaction in you, pause for a moment and put language to the feeling. Then, you can decide whether to share, avoid sharing, or verify.

In many cases, you can use a reverse image search to determine if an image has been repurposed or if manipulation has taken place. Even when you don't have time to do so, or a search yields inconclusive results, you'll know to be wary: Seeing is not necessarily believing.

It's also important to remember that digital tools and techniques change quickly. A tool may quickly become improved, replaced by something else, or suddenly obsolete. Tools can be great, but there's no substitute for your own good judgment.

DIGITAL TOOLS FOR IMAGE VERIFICATION

Fotoforensics.

<http://fotoforensics.com/>.

This image-comparison tool helps you to analyze the compression rate in a photograph, which may help you to tell if it has been tampered with.

Images.google.com.

<https://images.google.com/>.

Compares one image to others on the web.

InVid.

<https://www.invid-project.eu>.

A suite of visual-analysis tools, accessed as a browser plugin, that can help analyze video.

Reverse Photos.

<https://www.labnol.org/internet/mobile-reverse-image-search/29014/>.

This is also an image-comparison tool; it works well on mobile phones.

TinEye.

<https://tineye.com/>.

This image-comparison tool provides dates and more information about other instances an image was put into circulation.

SUGGESTED READING

Grady, "The Vision Thing."

McFarland. "Scientists Have Uncovered Exactly What Makes a Photo Memorable."



LECTURE 5

COUNTERING FAKES AND STEREOTYPES IN MEDIA

This lecture explores two very different types of misinformation that both have an especially damaging effect on our social fabric: fake information and stereotypes. The three species of fake information this lecture focuses on are fake social media accounts, fake chat messages, and fake reviews. The lecture also provides some signs to look out for when it comes to stereotyping.

FAKE SOCIAL MEDIA ACCOUNTS

Social media platforms are all-too-convenient tools for spreading fake information because they are easy to access and use. There can be many reasons for people to spread misinformation in this manner, including political, financial, and recreational reasons. It's often impossible to find out for each individual case.

To determine whether or not information on social media comes from an authentic person, there are a number of checks you can do. You may not arrive at a definitive answer. With that caveat in mind, here are the checks:

1. Start with Label to Disable. Pause for a moment, disconnect from what provoked the reaction, and put words to the feeling you are experiencing so you can regain control of your logical brain.
2. Look at the profile. Ask yourself: Did the user join recently? Do the user's photo, handle, and screen name match, or do you find, for example, a woman's picture with a man's name? Discrepancies could signal that you are dealing with a bot. Additionally, anonymous users or those who provide very limited information are more likely to be bots.
3. Look at the user's name. In some cases, a fake name may be almost indistinguishable from a real one.
4. Perform a reverse image search on the profile photo. Many fake profiles steal photos from real people.
5. Compare the number of users followed or shares to the number of followers or friends. If the account follows thousands of users or has thousands of shares but only has a handful of followers or friends, it could be a bot.
6. Most importantly, if you're not sure about the information, don't share it.

FAKE CHAT MESSAGES

Fake chat messages are another type of misinformation. For example, it is very easy to create fake text message exchanges. If you run into an image of a text chat on social media that provokes a strong reaction in you, first employ Label to Disable to get your rational brain in gear. Then, ask yourself: How would someone have obtained this chat? Are these really things that these people would likely say? If not, don't share the chat.

FAKE REVIEWS

Fake product reviews can be a real problem for consumers. There are a few signs that tend to point to fake reviews. The following useful tips are based on an episode of National Public Radio's *Planet Money* and on an interview with a computer scientist who specializes in fake review detection. (The scientist requested anonymity.)

1. Be aware that most reviews are not fake. The big online retailer and review forums all have teams dedicated to ferreting out fake reviews. However, it is a constant battle. Additionally, some fake reviews come from commercial companies themselves as they try to promote what they're selling.
2. Ask yourself: Does the language of the review sound unnatural? Does it sound like it was taken from marketing material?
3. Are there non-obvious terms used in multiple reviews, as if those reviewers are following the same script?
4. Do the positive reviews all cluster around a small stretch of time?
5. Are there many reviews from new accounts?
6. Are the reviews clustered mostly around perfect and terrible ratings, with very few in the middle?
7. Play the numbers game: Trust a product with many reviews averaging four stars over one that boasts five stars but only has a handful of reviewers. Keep in mind that people do tend to complain more than they praise, so take negative reviews with a grain of salt.
8. Finally, be wary of using reviews to make decisions that require better evidence. For instance, it might not be worth taking a dietary supplement that may have dangerous side effects simply because it has positive reviews.

STEREOTYPES

Stereotypes make up one area where doubt and caution are particularly called. Most often, people create stereotypes about those who are least like themselves. People can also internalize and believe stereotypes about the groups they belong to.

People often use social stereotypes as a means to identify a person, relying on fixed signs of identity instead of the behavior of an individual to decide what to believe about the person.



Some of the signs of stereotyping to look out for, in yourself and others, are these:

1. **Generalities.** Some generalities frequently used describe people are dumb, smart, lazy, hard-working, cheap, greedy, criminal, drug- or alcohol-abusing, hypersexualized, and timid.
2. **Belittling.** Examples include calling a grown person “little,” “boy,” or “girl.”
3. **Mocking**—that is, making someone the butt of jokes.
4. **Exaggeration and caricature.**
5. **Exoticizing.** Even if the person who said it means it as a compliment, exoticizing someone has the effect of dehumanizing the person and making unwarranted assumptions about him or her.
6. **Exclusionary language.** This involves assuming that people are not part of your group. An example would be a white person assuming that a non-white person is not American.

DEALING WITH STEREOTYPES

The artist Alexandra Bell has deconstructed hidden stereotypes and biases in how certain stories about African Americans are reported in the news media, including in *The New York Times*. She points out that design elements as subtle as the size of a picture, where a story is placed in a layout, and the message that headlines send can shape perceptions of victims in subtle ways.

When you next come across some news reporting that focuses on a person or group that is commonly stereotyped, pause. Then, ask yourself some questions:

- ◆ Is there any message about a particular identity group contained in the story, even if it's hard to immediately tell where the message is coming from?
- ◆ If one person's racial group is identified, are other people's racial groups identified as well? Is there a credible reason for race to be called out?
- ◆ Is the victim of a crime, such as a shooting, treated like a victim or treated like a suspect?
- ◆ Is the placement of a story or the length of time or number of words given to it justified by its importance to society?
- ◆ If the story profiles a family, does it assume that each of the parents should be playing a certain role relative to their gender?

If you are interested in delving further into your own hidden biases, consider participating in an online project designed to educate people about hidden biases and to collect data about those biases. You can find it at implicit.harvard.edu.

Mahzarin Banaji, the Harvard social psychologist who created the implicit bias test based on her research, said that she was surprised to discover her own race biases when she received her results from the test. Everyone has biases, but when we become aware of them, we become better able to choose how we want to think about and treat other people. Awareness of biases can also help identify and prevent the spread of biased information and hate speech.

SUGGESTED READING

Banaji, "Project Implicit."

The New Yorker, "Rewriting Racist Headlines."



LECTURE 6

JOURNALISTIC VERIFICATION SKILLS

Realistically speaking, it is neither desirable nor possible to check out all the information that comes your way. There is no simple trick that will help you spot misinformation all the time. However, you need to be ready to check out content that comes from unfamiliar sources, especially when it provokes a strong reaction in you. This lecture goes over several tools that will help you verify content.

CROSS-CHECKING

The most basic form of verification is called cross-checking. Cross-checking information simply means comparing the information you have found to information about the same topic in different sources to see whether all of the sources describe it in the same way. Cross-checking can be as simple as doing an internet search using Google or another search engine and then looking carefully at what comes up in your search. Skip any advertisements that come up and go beyond the first few results.

If you use Google, it's important to remember that Google's searches are guided by algorithms: computer-guided processes that tailor what will appear in search results based on your past search history, your internet habits, as well as advertising and marketing by different companies. That means your Google search won't find everything on the internet that you ask for in a search; it will assemble a mixture of things it thinks you want to see and things it will profit from showing you, arranged in an order that the algorithm chooses.

Google is the dominant search engine on the Web, but it is not the only one. You may find it helpful to try others. DuckDuckGo is a search engine that doesn't collect any data from the users that search on it, meaning that searches are not tailored and that your data is not sold to advertisers. This helps protect your privacy and can also help you break out of your information bubble.



LATERAL READING

Lateral reading is the skill that fact checkers use. The first step in lateral reading is to cross-check, but in a particular way. Don't just look at other sites that the site you are examining links to. Instead, look at which sites link to the site under examinations. Are they reliable? Do they confirm the information?

Wikipedia is a good starting point for cross-checking and lateral reading. Wikipedia's collaborative, self-regulating information platform overall works very well in verifying facts and minimizing bias: Users collectively act as a check on one another.

If you can, trace the origin of the claim you are trying to verify from website to website until you find its original source. Good journalists will be open and transparent about the steps they took to report a story, but others may simply provide a link to a website where they found information that they are reporting as fact.

Yet another element of lateral reading is to look up the website where the piece that you want to verify appeared. This can give you insights into their expertise as well as potentially ulterior motives for publishing the content.

One way to tell who runs a website is to look it up using a tool provided by ICANN. This allows you to see who it's registered to, and when it was registered. ICANN is an international nonprofit that determines the internet's system of domain names. The correct URL for an ICANN lookup is <https://whois.icann.org/en>. Be careful to avoid copycat sites.

PLAGIARISM

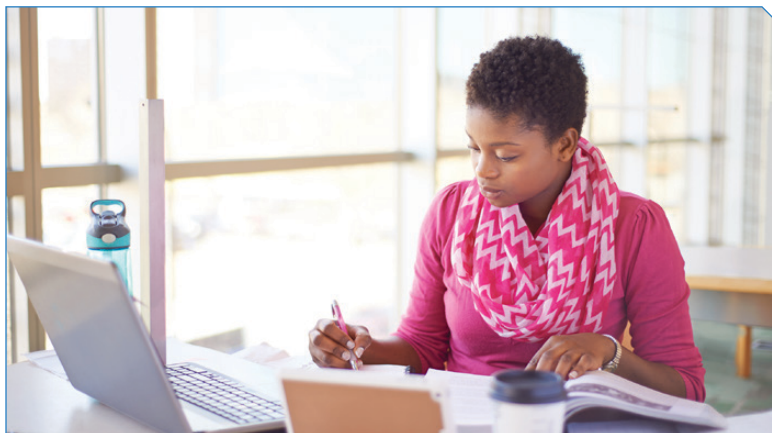
One of the challenges of the digital information age is that it's easy to plagiarize content. However, there are some defenses against plagiarism. A simple first step to verify a piece of content and where it came from is to check the original publication date. Old stories often get recycled on social media, so look around on other sites to see when the one that interests you was first published.

The Internet Archive, at archive.org, is a great nonprofit resource that works to preserve and archive the web. It works through an open access tool called the Wayback Machine. Its work ensures that people can go back and find content that might have been changed or even deleted and see when something was originally published.

ABUSE OF STATISTICS

Statistics are especially subject to abuse. Fortunately, statistics are usually relatively easy to check. Here are some tactics you can use to verify evidence:

- ♦ Ask yourself: Does the stat seem too good to be true? It may well be. That is a good clue to check it out.
- ♦ Think about the numbers involved. Do they support the argument being made? Do they make sense?
- ♦ If a link or name of a source document or organization is given in the article where the stat appears, cross-check. Click the link or use Google to try to find the document in question.
- ♦ Review the source document to substantiate whether it actually says what the article claims it says.
- ♦ Use lateral reading to learn about the author or source of the article. Then ask yourself: Does the author or source organization have the authority and expertise to provide that information?
- ♦ Google or search the organization's website for additional information.
- ♦ If you still have doubts, try to identify a reputable source for checking the information elsewhere.



You can find helpful and reputable sources for a wide variety of statistics that you might want to research. For example, <http://Iseek.com> is a specialized search engine that allows you to look across thousands of preapproved sources, including universities, governments, and nonprofits, on a wide variety of academic topics. For data involving the sciences, try the Library of Congress's Science Reference Services, which offer a list of reference guides on a wide variety of scientific topics. If you need to verify figures about countries, including their people, history, government, and economy, go to the CIA World Factbook.

EXERCISE: VERIFY THIS!

This lecture's activity asks you to look at a couple of articles and consider key ways to judge a piece of content based both on its sources—people the journalist or author talked to—and the citations of documents, such as reports, legislation, emails, video, and audio. As you work through the following worksheets, think about when an article needs sources and when it needs citations.

While the lecture asks you to practice with web-based articles, this set of questions can be used for video, TV, radio, reporting on social media, and other kinds of content. If you want to practice with more articles beyond the two in this lecture, you can find additional copies of the worksheet at the back of the guidebook.

ARTICLE 1:

https://web.archive.org/web/20180723204813/https://www.nj.com/camden/index.ssf/2018/07/bike_share_trial_ends_after_just_2_months_in_camde.html

EXERCISE WORKSHEET FOR ARTICLE 1

Questions	Notes
What is the name of the article?	
Does the article refer to people who served as sources? Is this needed in this article?	
Are the sources and citations multiple, or is only one source or document used throughout?	

Questions	Notes
Does the article accurately describe the sources and citations it is using?	
Can the sources used be trusted to be independent and not distort the truth to serve their self-interest?	
Are the sources named, or are anonymous sources used? If the latter, is there a good reason provided for the anonymity?	
Does the person quoted have good evidence for what they're saying? Would you expect them to be an authority on that topic?	

“answers” on page 34

ARTICLE 2:

<https://web.archive.org/web/20180701055258/https://yournewswire.com/cdc-flu-shot-deadly-outbreak/>

EXERCISE WORKSHEET FOR ARTICLE 2

Questions	Notes
What is the name of the article?	
Does the article refer to people who served as sources? Is this needed in this article?	
Are the sources and citations multiple, or is only one source or document used throughout?	

Questions	Notes
Does the article accurately describe the sources and citations it is using?	
Can the sources used be trusted to be independent and not distort the truth to serve their self-interest?	
Are the sources named, or are anonymous sources used? If the latter, is there a good reason provided for the anonymity?	
Does the person quoted have good evidence for what they're saying? Would you expect them to be an authority on that topic?	

“answers” on page 34:

SUGGESTED READING

Olsen, et al., “Skills Practice.”

Vigen, “Spurious Correlations.”

CREDIBLE REFERENCE SOURCES

American FactFinder.

<https://factfinder.census.gov/>.

Contains US Census data, including information on age, income, housing, industries race, country of origin, poverty, and education.

<http://Archive.today> or <http://archive.fo/>.

CIA World Factbook

<https://www.cia.gov/library/publications/the-world-factbook>.

Includes facts about countries, including their people, history, government, and economy, plus maps and flags of the world.

Congress.gov, Senate.gov, and House.gov. These provide good historical government data.

FBI. “Crime in the United States.”

<https://ucr.fbi.gov/crime-in-the-u.s.>

Contains More recent data on crime rates in the U.S.

ICANN’s Whois lookup.

<https://lookup.icann.org/>.

Iseek.

<http://education.iseek.com/iseek/home.page>.

A specialized search engine that allows you to look across thousands of preapproved sources.

National Security Archive.

<https://nsarchive.gwu.edu/>.

A depository for over 30 years of declassified US government documents.

Library of Congress. Science Reference Services.

<http://www.loc.gov/rr/scitech/>.

A list of reference guides on a wide variety of scientific topics.

Sourcebook of Criminal Justice Statistics.

<https://www.albany.edu/sourcebook/>.

Information on crimes, arrests, prosecutions, and prisons, including some long-term trends.

US Bureau of Labor Statistics.

<https://www.bls.gov/home.htm>.

Data on employment and unemployment, pay, and inflation.

The Wayback Machine.

<http://web.archive.org/>.

World Bank Data.

<https://data.worldbank.org/>.

Free access to vast amounts of data on global development.

DIFFERENT BROWSERS TO TRY

Bing: <https://www.bing.com/>.

Dogpile: <https://www.dogpile.com/>.

DuckDuckGo: <https://duckduckgo.com/>.

Google: <https://www.google.com/>.

Yahoo: <https://www.yahoo.com/>.

ANSWERS FOR ARTICLE 1:

The article uses a number of sources and citations. The sources are an executive (via a statement), the president of the Cooper's Ferry Partnership, and a Camden city spokesman. The citations include a CNN article, a study on bikeshare programs, a previous NJ.com article, and a Rutgers University announcement. Most of these are linked.

The article accurately describes its sources and citations, and all could be expected to be authoritative on the topics they're speaking to. There are no anonymous sources. Some of the sources might be expected to have their own interests at heart, but these do not overwhelm the story. For example, the company official is no doubt trying to put a positive spin on the situation, but his is far from the only voice in the piece.

For future reference: It is not necessarily a bad thing if an article lacks citations. Sometimes, all the information comes from talking to people, rather than from documents that can be linked to. However, where a story does rely on written or recorded evidence, you can have more confidence if those citations are provided.

ANSWERS FOR ARTICLE 2:

This article uses sources and citations poorly. The main point is based on the words of the anonymous "CDC doctor" quoted at the beginning. We are not told why this source must remain anonymous. Then, the article refers generally to "scientists" and "many health officials." Citing information to the CDC directly is better, but there is no link for us to verify. This wouldn't by itself be a huge problem, but we should already be doubting this story highly because of its reliance on an unjustified anonymous source. As the story goes on, it finds some better sources for a couple of points, such as the 10 percent effectiveness claim. However, the article then makes many claims with no support at all, with one example being this: "It is now a known fact that flu vaccines contain mercury." Another huge problem with this article is that much of it is opinion—a reason to doubt the writer's motives and thus the truth of the piece overall.



LECTURE 7

ASSESSING SCIENCE AND HEALTH NEWS

Science and health news can be confusing and frustrating. Part of the reason is that is the very nature of science itself. Scientific knowledge is always changing; new discoveries are constantly rendering previous beliefs obsolete. At the same time, when the great weight of the evidence favors a particular conclusion, there is good reason to believe it. The news media do not always do a good job of explaining scientific findings or putting them in proper context. They also compete for the public's attention with misinformation, which sometimes comes from parties whose interests are threatened by what researchers have found. This lecture looks at how to distinguish the news you can trust from the news you can't.

THE SCIENTIFIC METHOD

To start, it's important to have a clear understanding of the scientific method. Robert Niles, writing in the *Online Journalism Review* in 2011, summarized it nicely in seven steps:

1. Find a topic or question worth exploring.
2. Do some initial background research to learn about your topic or question. Read what has been written before.
3. Come up with a hypothesis. This is your best guess of what happened, what is happening, or what will happen based on what you already know.
4. Test your hypothesis. Do this by collecting data, either through controlled experimentation or observation.
5. Look at and analyze your data.
6. Based on your analysis, either accept or reject your hypothesis.
7. Publish your information, including all relevant details on how you collected and analyzed your data.

SCIENCE AND HEALTH NEWS WORKSHEET

The below worksheet is designed to help you vet the scientific validity of reported science and health news. Most of the items on it summarize tips from Health News Review, a health journalism watchdog, and from Africa Check, a fact-checking organization.

When you read a story on a science or health topic, ask yourself the following questions. There are copies of a stripped-down version of this worksheet at the end of the guidebook.

Questions	Notes
<p>Does the story use hyperbolic language? Rarely do scientific studies yield true “breakthrough,” “revolutionary,” or “game-changing” treatments. Science tends to gain knowledge in small steps.</p>	

Questions	Notes
<p>What other studies have been done? Good scientific research takes account of the work of others. It might support that work or challenge it, but it doesn't ignore it.</p>	
<p>What was the sample size? If this was a health study, how many people participated in it? Statistically, data from hundreds or thousands of people is generally more reliable than data from just a few people. Smaller studies involving just a few people are often just pilot research that is conducted to determine whether doing a larger study makes sense. Any good science or health reporter should know that the results of such pilot studies carry little weight on their own. And if a news story relies on anecdotes alone, that's even less reliable—the sample size is even smaller than you'd find in any scientific study. Anecdotes in a news story can serve to illustrate a problem or a point, but taken by themselves, they yield terrible data.</p>	
<p>Did the study involve mice or people? Many medical studies are conducted on rodents first. This lays the groundwork for human studies, but a certain effect in mice may not appear in people.</p>	

Questions	Notes
<p>Do the reported findings show causation or mere correlation? Two things can be correlated, or systematically associated, without one causing the other.</p>	
<p>If the story is about a medical treatment, does it talk about cost and availability? If a treatment is too expensive for most people to use, it may not make much difference.</p>	
<p>Does the story provide details on a treatment's benefits and harms?</p> <p>Regarding benefits: How effective is the treatment? Is this quantified?</p> <p>Regarding harms: Few treatments are without their side effects. What are these? What about potential interactions with other drugs? If these are not mentioned, the article isn't very trustworthy.</p>	
<p>Is the story engaging in disease-mongering? Sometimes a story will exaggerate the severity of a condition or medicalize what is actually a normal state of health.</p>	

Questions	Notes
Is the article based on research that was published in a reputable scientific journal? Real scientific journals have a rigorous review process to try and make sure studies were carried out well and results are accurate. However, just as there are fake news publishers, there are fake journals.	
Who funded the research? Be careful of conflicts of interest.	

HEALTH NEWS EVALUATION CHART AND SAMPLE ARTICLES

If you would like to practice looking for those markers in reporting or digital content, you can use the following chart to help prompt your questioning. There are also sample articles to practice on. Once you've gone through the exercise a couple of times, you will become more accustomed to asking yourself basic verification questions when you encounter new science and health information. There are additional copies of this chart at the back of the guidebook.

	Bad	Average	Good
Other studies mentioned?			
Sample size?			
Mice or men?			
Correlation or causation?			
Cost and availability?			
Benefits and harms?			

	Bad	Average	Good
Is it new, and is that good?			
Disease-mongering?			
Real journal?			
Who funded?			

SAMPLE ARTICLES FOR PRACTICING VERIFICATION TECHNIQUES

1. **“Sleep Apnea Patient Finds Rest with Implant Device.”**
<https://web.archive.org/web/20180701004813/https://www.cbsnews.com/news/sleep-apnea-inspire-implant-revolutionary/>
2. **“Scientist Edge Closer to a Blood Test to Detect Cancers.”**
<https://web.archive.org/web/20180701002354/https://www.npr.org/sections/health-shots/2018/01/18/578620342/scientists-edge-closer-to-a-blood-test-to-detect-cancers/>
3. **“Three-in-One Pill Shows Promise in Beating High Blood Pressure.”**
<https://consumer.healthday.com/circulatory-system-information-7/blood-pressure-news-70/three-in-one-pill-shows-promise-in-beating-high-blood-pressure-731890.html>
4. **“How Barbershops Could Help Lower Blood Pressure.”**
<https://web.archive.org/web/20180701001813/https://www.cnn.com/2018/03/12/health/blood-pressure-barbershop-study/index.html>

SUGGESTED READING

Goldacre, “Battling Bad Science.”

National Academy of Sciences, “Answers to Everyday Science and Health Questions from the National Academies.”

CREDIBLE SOURCES FOR HEALTH AND SCIENCE INFORMATION

Africa Check. “7 Steps to Detect if Someone Is Talking Science Nonsense.”

<https://africacheck.org/factsheets/guide-7-steps-detect-someone-talking-science-nonsense/>.

Source for tips on verifying science news.

Beall’s List of Predatory Journals and Publishers.

<https://beallslist.weebly.com/>.

Which supposedly scientific journals may have been flagged as unreliable? Check here for predatory and vanity publishers.

Centers for Disease Control and Prevention.

<https://www.cdc.gov/>.

Tracks the spread of infectious disease in the US and provides information on a variety of health topics.

Cochrane Library.

<https://www.cochranelibrary.com/>.

Reviews thousands of studies to provide overviews of current scientific findings on health topics, presented in layman’s terms.

FDA.

<https://www.fda.gov/home/>.

US agency that regulates drug approvals and many food products. The FDA also regulates nutritional labeling.

Health News Review.

<https://www.healthnewsreview.org/about-us/review-criteria/>.

Source for tips on verifying health news.

USDA.

<https://www.usda.gov/>.

U.S. agency that regulates safety of meat and egg products.

WebMD. <https://www.webmd.com/>.

Mayo Clinic. <https://www.mayoclinic.org/>.

Reliable sources of information on disease and injury, including symptoms, prevention and treatments.

World Health Organization.

<https://www.who.int/>.

Tracks the spread of infectious diseases around the world.

The background features a complex pattern of diagonal stripes in various colors including blue, red, yellow, and white. A semi-transparent image of a person's face is visible in the upper left quadrant, partially obscured by the stripes.

LECTURE 8

TECHNOLOGY, MISINFORMATION, AND THE FUTURE

A misinformation arms race is continually underway. On one side of the race are developers of new forms of trickery such as so-called deepfake videos. These are videos that can be used to make people look like they are saying something they never actually said, to a very high degree of realism. Artificial intelligence has also made it possible to create fake audio and to quickly generate fake text in the style of a particular speaker. On the other side are AI researchers who are searching for ways to identify such misinformation and stop it.

MULTIPLE FRONTS

The war on misinformation will have to be waged on several fronts, using multiple methods that will require great human ingenuity. Efforts against misinformation must include:

- ◆ Improving and increasing independent journalism and access to information.
- ◆ Making tech platforms accountable for their roles in spreading misinformation, including through regulation.
- ◆ Creating international commitments to fact-based information.
- ◆ Strengthening individuals' and communities' skills in navigating information, scrutinizing its veracity, and resisting the impulse to pass it on unless they are sure it is accurate.

To further enhance your media literacy skills and your ability to pass them on to others, this lecture turns to some ways that you might respond to some of the newest and most potent forms of misinformation out there. Suppose one or more of the following happen to you:

- ◆ You hear an audio file that a friend messages to you. In the recording, a well-known celebrity admits to cheating on his girlfriend. What would you do?
- ◆ You see a video on YouTube that claims to show a cop shooting an unarmed suspect. What do you do?
- ◆ You're playing an augmented reality history game on your phone. As you look through your phone's camera at a school near your house, a plaque flashes up on the screen, claiming that this was the site of a Civil War battle. Is this true?

The first step when something provokes a strong reaction in you is always Label to Disable:

- ◆ **Pause:** Turn your head away from the screen or paper.
- ◆ **Ask:** What am I feeling?
- ◆ **Say:** The label that you've given the feeling to yourself.

Putting language to the feeling will let you take back your rational brain. Then, you can do some detective work.



Regarding the audio file of the supposed celebrity: Audio files that sound convincing but don't precisely replicate a voice are easy to fake. Check with a fact-checking organization like Gossip Cop or see if the story has been covered by a news organization that follows good journalistic standards.

For the video of the shooting, start with a fact-checking organization or news outlet that follows good journalistic standards. Police shootings are usually widely covered. Also get a screenshot of the video and then do a reverse-image search of it to see if the video is what it purports to be or is repurposed from some previous event. Finally, use the plugin InVid to check when the video was uploaded to YouTube.

For the augmented reality game, go to a reputable reference on history. Try typing "Civil War" into iSeek, a specialized search engine, and then use one of the resources you find. Alternatively, look up the battle on Wikipedia, and then then click on the references so you can view the original source.

There is no simple way to spot misinformation. You need to use an analytical mindset. Even if you can't figure out which verification technique to use in a specific situation, the simple act of pausing and reactivating your critical thinking will enable you to choose not to share any dubious information.

MOVING FORWARD

The problem of misinformation and manipulation is a huge one, but you don't need to go it alone: There is a growing number of people who are equipped to spread media literacy in their communities and prevent dubious information from circulating. As for what you can do, here are some practical ways to take action:

- ◆ Make a commitment not to create or share dubious information. Tell one or two other people about this commitment and why it's important, and teach them what you have learned in this course if they are interested.
- ◆ Break your information bubble. Explore media that have a different political slant than that of the media you usually consume.
- ◆ Find practical ways to keep the skills and tools you have learned present for you. For example, post a list of fact-checking websites on your wall. Put a post-it that says "Label to Disable" on your computer. Set a daily alarm or calendar reminder to bring your awareness back to the kind of information you are consuming, and how.
- ◆ Finally, do a digital detox. Spend one day a week away from screens and the internet, try a social media fast, or take a vacation from all things digital. Important as news and commentary can be, keep in mind that all media have a vested interest in holding your attention. Don't ever let yourself become apathetic—but keep the urgent calls of the latest headlines in perspective.

SUGGESTED READING

Buzzfeed, “You Won’t Believe What Obama Says in This Video!”

Seymour, “The Machine Always Wins.”

Time to Log Off, <https://www.itstimetologoff.com/>.

FACT-CHECKING RESOURCES

FactCheck org, <https://www.factcheck.org>.

Gossip Cop, <https://www.gossipcop.com/>.

Health Feedback, <https://healthfeedback.org/>.

Lead Stories, <https://leadstories.com/>.

PolitiFact, <http://www.politifact.com/>.

SciCheck, <https://www.factcheck.org/scicheck/>.

Snopes, <https://www.snopes.com/>.

Unfakery, <https://www.facebook.com/unfakery/>.

Washington Post Fact-Checker, <https://www.washingtonpost.com/news/fact-checker/>.

Wikipedia, <https://www.wikipedia.org/>.

QUIZ

1. What is the accurate and precise term for incorrect or misleading information?
 - a. Fake news.
 - b. Misinformation.
 - c. Disinformation.
 - d. Parody.
2. The illusory truth effect occurs when:
 - a. Truth appears to have a magical quality.
 - b. We hear something repeatedly and become more likely to believe it.
 - c. Optical illusions ingrain the truth in our brains.
3. Which of the following are key pillars of the Code of Ethics of the Society for Professional Journalists?
 - a. Seek the truth and report it.
 - b. Seek to minimize harm.
 - c. Act independently.
 - d. Be accountable and transparent.
 - e. All of the above.
4. Algorithms serve what function in social media?
 - a. Estimating the cost of advertising on a page.
 - b. Deciding the rhythm with which “likes” are recorded on a post.
 - c. Determining what appears on a person’s feed based on how they engaged in the past.
 - d. Helping promote digital games to the user, based on their answers to a survey.

- 5.** What is confirmation bias?
- A type of stereotyping that confirms a person's first idea about someone.
 - An innocuous cognitive tendency that does not leave people susceptible to misinformation.
 - The human tendency to only take in information that supports our point of view and ignore information that contradicts it.
- 6.** Why is Label to Disable important?
- It's a very credible fact-checking website.
 - It can help you save money when you purchase clothing from well-known designer labels.
 - It diffuses a strong emotional response and activates the analytical mind.
 - It can help you calculate the number of hours you spend on media every day.
- 7.** Why should we be concerned about memes on the web?
- They detract from the seriousness of independent news.
 - The combination of a strong visual and text can be quite convincing and even manipulative.
 - They are forgeries that can only be decoded using bots.
 - They emit a loud beep that distracts us from focusing on a single task.
- 8.** Which of the following statements about stereotypes is true?
- Stereotypes are rarely seen in the information age.
 - Subtle stereotypes in media have little impact on how we see the world.
 - Not everyone stereotypes other groups of people.
 - Media has been used to reinforce stereotypes that were part of a leadup to genocide as recently as 2018.

9. Which of the following is true about fact-checking?
- It is the most important skill in media literacy.
 - As a detailed examination of all of the pages within a website, it is a necessary first step.
 - A number of independent websites, such as FactCheck and Snopes, offer verified information as a public service.
 - It is a skill employed mainly to verify purported facts about politics.
10. Which of the following techniques can be used in textual verification?
- Google a topic and check the results of the search.
 - Trace the information in a claim to its original source.
 - Use the five Ws as a prompt for your analysis: who, what, when, where, and why.
 - Check Wikipedia.
 - All of the above
11. Which common data visualization is actually completely distorted?
- The Mercator world map.
 - The American flag.
 - The Greek alphabet.
 - Stock market ticker symbols.
12. Why is it hard to sort out the truth in science and health news?
- There is very little good reporting about science.
 - Scientific knowledge is evolving and never completely proven.
 - There are no fact checking websites devoted to science.
 - Scientists often conceal their findings from the public until they have tested a hypothesis many times.

13. Which of the following suggests that you are reading reporting on trustworthy science?
- A headline announcing a “game-changing” treatment for cancer that was just discovered.
 - A sample size of 10 in a two-month study of a new nutritional regime that lowered cholesterol in all participants.
 - A promising new treatment for diabetes that seems to have no drawbacks or limitations.
 - A plain-language case study used to explain some research published in the *New England Journal of Medicine*.
14. What makes deepfakes such a risky new phenomenon?
- They are hidden within the internet and may emerge at any moment without warning.
 - The technology uses artificial intelligence to create fake video that appears to be real.
 - The technology is widespread and most people can create them easily.
 - They create the realistic appearance of sea creatures in places where they don’t belong, such as a shark on a highway or stepping on a Lego.
15. Which of the following can help fight misinformation?
- Individuals taking responsibility for what they share online.
 - Digital platforms acknowledging their role in spreading misinformation.
 - The improvement of independent journalism and increasing access to fact-based information.
 - All of the above.

Answers: 1. (b); 2. (b); 3. (e); 4. (c); 5. (c); 6. (c); 7. (b); 8. (d); 9. (c); 10. (e); 11. (a); 12. (b); 13. (d); 14. (b); 15. (d);

BIBLIOGRAPHY

LECTURE 1

Broniatowski, David A., Amelia M. Jamison, SiHua Qi, Lulwah AlKulaib, Tao Chen, Adrian Benton, Sandra C. Quinn, and Mark Dredze. “Weaponized Health Communication: Twitter Bots and Russian Trolls Amplify the Vaccine Debate.” *American Journal of Public Health*. <https://ajph.aphapublications.org/doi/10.2105/AJPH.2018.304567>. This study demonstrates how Russian Twitter trolls have been actively fueling the anti-vaccination debate in the United States by promoting arguments on both sides.

Caltrider, Jen. “Reading List: What Can You Trust on the Internet?” Mozilla Foundation, August 14, 2019. <https://foundation.mozilla.org/en/blog/what-can-you-trust-internet/>. A reading list of articles that can help you understand online manipulation.

Center for Media Literacy. “Media Literacy in the USA.” <http://www.medialit.org/reading-room/media-literacy-usa>. A brief literature review dating back to before the 1960s of the development of the field of media literacy in the United States.

Dizikes, Peter. “Study: On Twitter, False News Travels Faster Than True Stories.” MIT News Office, March 8, 2018. <http://news.mit.edu/2018/study-twitter-false-news-travels-faster-true-stories-0308>. Groundbreaking study of over a decade of tweets that revealed misinformation’s speed on social media.

Domo.com. “Data Never Sleeps 7.0” <https://www.domo.com/learn/data-never-sleeps-7#/>. Different calculations by a commercial digital media research company about digital media use over the years. Updated each year. This course was taped before version 7.0 was released.

Donald, Brooke. “Stanford Researchers Find Students Have Trouble Judging the Credibility of Information Online.” Stanford Graduate School of Education, November 22, 2016. <https://ed.stanford.edu/news/stanford-researchers-find-students-have-trouble-judging-credibility-information-online>.

Gottfried, Jeffrey, and Michael Barthel. “Almost Seven-in-Ten Americans Have News Fatigue, More among Republicans.” Pew Research Center. June 5, 2018. <http://www.pewresearch.org/fact-tank/2018/06/05/almost-seven-in-ten-americans-have-news-fatigue-more-among-republicans/>. Reporting on a study by Pew Research investigating Americans’ fatigue with the news and how it breaks down demographically.

Guess, Andy, Jonathan Nagler, and Joshua Tucker. “Who Was Most Likely to Share Fake News in 2016? Seniors.” *The Washington Post*, January 9, 2019. <https://www.washingtonpost.com/news/monkey-cage/wp/2019/01/09/who-shared-fake-news-during-the-2016-election-campaign-youll-be-surprised/>. Summary of the NYU study that found people over 65 were more susceptible to sharing false information on Facebook.

Howard, Philip N., Bharath Ganesh, Dimitra Liotsiou, John Kelly, and Camille François. “The IRA, Social Media and Political Polarization in the United States, 2012–2018.” Working paper 2018.2. Project on Computational Propaganda. <https://comprop.oii.ox.ac.uk/research/ira-political-polarization/>. An analysis of the attack by Russia’s Internet Research Agency on social media in the US and the attempt to influence voters.

International Telecommunications Union. <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>. ITU, a United Nations specialized agency, provides data on global internet access and change over time.

MediaKix. “How Much Time Do We Spend on Social Media?” December 15, 2016. <https://mediakix.com/blog/how-much-time-is-spent-on-social-media-lifetime/>. Commercial media research company calculates how all of American’s media consumption adds up over the course of a lifetime.

Nimmo, Ben. “Anatomy of an Info-War: How Russia’s Propaganda Machine Works, and How to Counter It.” Central European Policy Institute, May 15, 2015. <https://www.stopfake.org/en/anatomy-of-an-info-war-how-russia-s-propaganda-machine-works-and-how-to-counter-it/>. A political analyst describes the characteristics of Kremlin propaganda.

Pager, Tyler. “‘Monkey, Rat, and Pig DNA’: How Misinformation is Driving the Measles Outbreak in Ultra-Orthodox Jews.” *New York Times*. April 9, 2019. <https://www.nytimes.com/2019/04/09/nyregion/jews-measles-vaccination.html>.

Pomerantsev, Peter. “The Disinformation Age: A Revolution in Propaganda.” *The Guardian*, July 27, 2019. <https://www.theguardian.com/books/2019/jul/27/the-disinformation-age-a-revolution-in-propaganda>. A discussion of the recent forms of propaganda.

Sullivan, Kaitlin. “What Washington can Learn from Past Measles Outbreaks.” *Popular Science*. February 22, 2019. <https://www.popsoci.com/measles-vaccination-rates-minnesota-washington>. The role of misinformation in driving anti-vaccination—and thus measles—surges.

Rathje, Steve. “When Correcting a Lie, Don’t Repeat It. Do This Instead.” *Psychology Today*, July 23, 2018. <https://www.psychologytoday.com/us/blog/words-matter/201807/when-correcting-lie-dont-repeat-it-do-instead-2>. On the illusory truth effect and correcting lies through a “truth sandwich.”

Resnick, Brian, “The Science behind Why Fake News Is So Hard to Wipe Out.” *Vox*. October 23, 2017. <https://www.vox.com/science-and-health/2017/10/5/16410912/illusory-truth-fake-news-las-vegas-google-facebook>. A discussion of the illusory truth effect and how it operates in popular media.

Statista. “Global Digital Population as of July 2019.” <https://www.statista.com/statistics/617136/digital-population-worldwide/>. Statistics on worldwide internet, mobile, and social media users.

Stocking, Galen. “Many Americans Say Made-Up News Is a Critical Problem That Needs to Be Fixed.” *Pew Research Center*, June 5, 2019. <https://www.journalism.org/2019/06/05/many-americans-say-made-up-news-is-a-critical-problem-that-needs-to-be-fixed/>. A summary of Pew Research’s 2019 findings from a survey of Americans’ opinions about misinformation and the news.

UPMC. “Social Media Use Associated With Depression Among U.S. Young Adults.” March 22, 2016. <https://www.upmc.com/media/news/lin-primack-sm-depression>. Report on research by the University of Pittsburgh School of Medicine.

Wardle, Claire. “Fake News. It’s Complicated.” First Draft Media, Feb. 16, 2017. <https://medium.com/1st-draft/fake-news-its-complicated-d0f773766c79>. A useful taxonomy of misinformation.

LECTURE 2

The American Press Institute. “What is Journalism?” <https://www.americanpressinstitute.org/journalism-essentials/what-is-journalism/>. A collection of useful resources that help to explain the practice of journalism.

Benton, Joshua. “The Game of Concentration: The Internet Is Pushing the American News Business to New York and the Coasts.” Nieman Lab. March 25, 2016. <https://www.niemanlab.org/2016/03/the-game-of-concentration-the-internet-is-pushing-the-american-news-business-to-new-york-and-the-coasts/>.

Grieco, Elizabeth. “U.S. Newsroom Employment Has Dropped by a Quarter Since 2008, with Greatest Decline at Newspapers.” Pew Research. July 9, 2019. <https://www.pewresearch.org/fact-tank/2018/07/30/newsroom-employment-dropped-nearly-a-quarter-in-less-than-10-years-with-greatest-decline-at-newspapers/>. Pew research’s study on the decline of local news over a 10-year period.

Iles, Matthew. “The Civil White Paper.” Civil. May 11, 2018. <https://blog.joincivil.com/the-civil-white-paper-3e6c6f72dd9e>. The foundational white paper for a new journalistic business model based on trust, transparency, and blockchain technology.

Joint Resolution of Congress. “The Bill of Rights.” National Archives. <https://www.archives.gov/founding-docs/bill-of-rights-transcript>. The text of the constitutional amendments.

News Guard. <https://www.newsguardtech.com/>.

Newspaperownership.com. “Daily Papers That Were Closed, Merged, or Shifted to Weeklies.” <http://newspaperownership.com/additional-material/closed-merged-newspapers-map/>.

Ohio University. “The Media Deserts Project.” <http://test.voinovichschool.ohio.edu/media/media.htm>. A mapping of how local newspapers have disappeared over time in the US.

Pariser, Eli. “Beware of Online Filter Bubbles.” TED Talk, March 2011. https://www.ted.com/talks/eli_pariser_beware_online_filter_bubbles?language=en. A researcher explains the concept of how information gets filtered online and how we are subject to an increasingly non-diverse range of information.

Smith, Phillip. “Dear Internet, Can We Talk? We have an information pollution problem of epic proportions.” PhillipADSmith.com. July 20, 2017. <https://phillipadsmith.com/2017/07/we-have-an-information-pollution-problem.html>. A blog considering various complex dimensions of “information pollution” and its threat to the health of the information ecosystem.

Society for Professional Journalists. “Code of Ethics.” <https://www.spj.org/pdf/spj-code-of-ethics.pdf>

Stone, Geoffrey R., and Eugene Volokh. “Freedom of Speech and The Press.” National Constitution Center Resources. <https://constitutioncenter.org/interactive-constitution/amendments/amendment-i/the-freedom-of-speech-and-of-the-press-clause/interp/114>. Provides a plain language interpretation of how the first amendment is generally applied.

Tufekci, Zeynep. “YouTube. The Great Radicalizer.” New York Times Opinion. March 18, 2018. <https://www.nytimes.com/2018/03/10/opinion/sunday/youtube-politics-radical.html>. An analysis of how YouTube’s ad revenue model together with the algorithms suggest increasingly radical content.

Wikipedia. “History of Communication.” https://en.wikipedia.org/wiki/History_of_communication. Provides dates for the timeline of communications inventions.

LECTURE 3

60 Minutes. “What Is ‘Brain Hacking?’ Tech Insiders on Why You Should Care.” CBS, April 9, 2017. <https://www.cbsnews.com/news/brain-hacking-tech-insiders-60-minutes/>. A profile of Tristan Harris, including an explanation of tech companies’ use of brain science to keep people hooked on technology.

Astrology.com. “Scorpio.” <https://www.astrology.com/horoscope/daily/scorpio.html>. Sample horoscope.

Ciampaglia, Giovanni Luca, and Filippo Menczer. “Biases Make People Vulnerable to Misinformation Spread by Social Media.” *The Conversation*, June 21, 2018. <https://www.scientificamerican.com/article/biases-make-people-vulnerable-to-misinformation-spread-by-social-media/>.

Metzger, Miriam J., and Andrew J. Flanagin. “Credibility and Trust of Information in Online Environments: The Use of Cognitive Heuristics.” *Journal of Pragmatics* 59, 2013. A summary of the shortcuts the brain takes that are most relevant to how people judge the degree of credibility of information they encounter online.

Sakuma, Amanda. “The Bogus ‘Momo Challenge’ Internet Hoax, Explained. How a Viral Urban Legend Swept the Globe.” *Vox*, March 3, 2019. <https://www.vox.com/2019/3/3/18248783/momo-challenge-hoax-explained>.

Siegel, Dan. “Name It to Tame It.” Dalai Lama Center for Peace and Education, December 8, 2014. <https://www.youtube.com/watch?v=ZcDLzppD4Jc>. A brief explanation of the Name It to Tame It technique and the science behind why it works.

Steinmetz, Katy. “How Your Brain Tricks You into Believing Fake News.” *Time*, August 9, 2018. <https://time.com/5362183/the-real-fake-news-crisis/>.

Wehner, Peter. “Why People Are Wired to Believe What They Want to Believe, and What We Can Do about That.” *Medium*, March 13, 2018. <https://medium.com/trust-media-and-democracy/why-people-are-wired-to-believe-what-they-want-to-believe-4d9b4e161eb5>.

LECTURE 4

ABC News. “Eagle Snatches Baby in Viral Video: Caught on Tape—Is It Real or Fake?” December 19, 2012. <https://www.youtube.com/watch?v=ZaXI57qpasM>. Reporting on the viral video referred to during the lecture, with a clip of the video itself.

Best Illusion of the Year Contest. <http://illusionoftheyear.com/>. An archive from an annual contest on optical illusions.

Chokshi, Niraj. "That Wasn't Mark Twain: How a Misquotation Is Born." *The New York Times*. April 26, 2017 <https://www.nytimes.com/2017/04/26/books/famous-misquotations.html>. A profile of the founder of Quote Investigator, a fact-checking site for quotes.

Grady, Denise. "The Vision Thing: Mainly in the Brain." June 1, 1993. <http://discovermagazine.com/1993/jun/thevisionthingma227>.

McFarland, Matt. "Scientists Have Uncovered Exactly What Makes a Photo Memorable." *The Washington Post*, December 29, 2015. https://www.washingtonpost.com/news/innovations/wp/2015/12/29/forget-beautiful-sunrises-embrace-absurdity-heres-how-to-take-memorable-photos/?utm_term=.72b6a308acc5. A review of scientific research regarding what makes images stick in the memory.

McKitterick, Molly. "Russian News Media Fake Stories about US." VOA News, November 27, 2015. <https://learningenglish.voanews.com/a/russian-news-outlets-fake-story/3062216.html>. How the US Embassy in Russia created fake photos of Ambassador Tefft to playfully expose other fraudulent photos of him.

Schnotz, Wolfgang. "Towards an Integrated View of Learning From Text and Visual Displays." *Educational Psychology Review*, vol. 14, no. 1. March 2002. <http://www.csuchico.edu/~nschwartz/schnotz2002.pdf>.

LECTURE 5

Al-Heeti, Abrar. "Fake News on WhatsApp Provokes Lynchings in India." July 2, 2018. <https://www.cnet.com/news/whatsapp-rumors-reportedly-led-to-lynchings-in-india/>.

Always. "#Like a Girl." <https://www.youtube.com/watch?v=XjJQbjWYDTs>. Video that upends insults such as, "You run like a girl."

Angwin, Julia, and Hannes Grassegger. “Facebook’s Secret Censorship Rules Protect White Men from Hate Speech but Not Black Children.” https://www.propublica.org/article/facebook-hate-speech-censorship-internal-documents-algorithms?utm_campaign=bt_facebook&utm_source=facebook&utm_medium=social.

Banaji, Mahzarin. “Project Implicit.” <https://implicit.harvard.edu/implicit/takeatest.html>. Online test that reveals individual biases that we are unaware of.

DFRLab. “#BotSpot: Twelve Ways to Spot a Bot.” Digital Forensic Research Lab, August 28, 2017. <https://medium.com/dfrlab/botspot-twelve-ways-to-spot-a-bot-aedc7d9c110c>.

Funke, Daniel. “Meet the Next Misinformation Format: Fake Audio Messages.” Poynter, July 16, 2018. <https://www.poynter.org/fact-checking/2018/meet-the-next-misinformation-format-fake-audio-messages/>. A discussion of audio fakes and hoaxes on WhatsApp and the company’s attempt to combat it.

Ingram, Mathew. “Facebook Slammed by UN for Its Role in Myanmar Genocide.” *Columbia Journalism Review*, November 8, 2018. https://www.cjr.org/the_media_today/facebook-un-myanmar-genocide.php. After a fact-finding mission, the UN condemned Facebook for not taking action to prevent propaganda from urging actions that led to Rohingya genocide in Myanmar.

Maximino, Martin. “Propaganda, Media Effects and Conflict: Evidence from the Rwandan Genocide.” *Journalist’s Resource*, December 3, 2014. <https://journalistsresource.org/studies/international/human-rights/propaganda-conflict-evidence-rwandan-genocide/>. Study on the role of radio in helping to incite the Rwandan genocide.

The New Yorker. “Rewriting Racist Headlines. The Artist and Media Critic Alexandra Bell Revises Biased News Coverage.” <https://video.newyorker.com/watch/rewriting-racist-headlines>. May 4, 2018. This short video documentary depicts how artist Alexandra Bell’s art critiques subtle racial bias in newspapers.

TED Radio Hour. “Why Do We Create Stereotypes?” NPR, November 14, 2014. <https://www.npr.org/templates/transcript/transcript.php?storyId=362373052>. Transcript of a profile of psychologist Paul Bloom, who explains how stereotyping of others arises from a natural function of the human brain.

Planet Money. “Episode 850: The Fake Review Hunter.” NPR, June 27, 2018. https://www.npr.org/sections/money/2018/06/27/623990036/episode-850-the-fake-review-hunter?utm_term=nprnews&utm_content=buffer794&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer. An investigation into online fake reviews.

LECTURE 6

Cairo, Alberto. “New Book and New Public Lecture.” <http://www.thefunctionalart.com/2019/02/new-book-and-new-public-lecture.html>. Blog about the designer’s new book, *How Charts Lie: Getting Smarter about Visual Information*.

Caulfield, Michael A. “Web Literacy for Student Fact-Checkers.” Creative Commons Attribution 4.0 International License. January 8, 2017. <https://webliteracy.pressbooks.com/front-matter/web-strategies-for-student-fact-checkers/>. Guide to news verification.

Chute, Nate. “Ben & Jerry’s Isn’t Selling CBD-Infused Products (Yet) But Other Companies Are. Here’s Why.” *Burlington Free Press*, May 31, 2019. <https://www.burlingtonfreepress.com/story/news/2019/05/31/ben-and-jerrys-cbd-ice-cream-fda-hearing/1298834001/>. Better reporting on the same topic as the article used for the verification exercise (regarding CBD in Ben & Jerry’s ice cream).

Fiala, Emma. “Ben & Jerry’s to Start Selling CBD-Infused Ice Cream as Soon as Possible.” *The Mind Unleashed*, May 31, 2019. <https://themindunleashed.com/2019/05/ben-jerrys-cbd-ice-cream.html>. The example article used for the verification exercise.

Moran, Chris. “Why We’re Making the Age of Our Journalism Clearer at *The Guardian*.” *The Guardian*, April 2, 2019. <https://www.theguardian.com/help/insideguardian/2019/apr/02/why-were-making-the-age-of-our-journalism-clearer>. *The Guardian*’s discussion of its attempts to become more transparent in reporting.

Olsen, Jonathan, Sarah Gross, and Katherine Schulten. “Skills Practice. Distinguishing Between Fact and Opinion.” *The New York Times*, December 13, 2013. <https://learning.blogs.nytimes.com/2013/12/13/skills-practice-distinguishing-between-fact-and-opinion/>. Quiz to practice discerning fact from opinion.

Robbins, Naomi. “What’s Wrong with This Graph?” *Forbes*. November 17, 2011. <https://www.forbes.com/sites/naomirobbins/2011/11/17/whats-wrong-with-this-graph/#df0d6dc2a336>. A guide to recognizing misleading elements in graphs as well as common graphical mistakes.

Sterbenz, Christina, “The Most Popular Map of the World Is Highly Misleading.” *Business Insider*, December 12, 2013. <https://www.businessinsider.com/mercator-projection-v-gall-peters-projection-2013-12>. How the Mercator projection map’s distortions have distorted our perceptions of the world.

Vigen, Tyler. “Spurious Correlations.” <http://www.tylervigen.com/spurious-correlations>. Blog demonstrating numerous sets of humorously correlated data that have nothing to do with each other.

LECTURE 7

Goldacre, Ben. “Battling Bad Science.” TED Talk. Sep 29, 2011. <https://www.youtube.com/watch?v=h4MhbkWJzKk>. A lecture on the ways that science and evidence can be distorted.

Labos, Christopher, and Jonathan Jarry. “Anecdotes (the Body of Evidence).” <https://www.youtube.com/watch?v=QDIPOSSVPuA>. YouTube. July 18, 2016. Video mini-lecture regarding anecdotal evidence for health.

National Academy of Sciences. “Answers to Everyday Science and Health Questions from the National Academies.” <http://sites.nationalacademies.org/BasedOnScience/index.htm>. Debunking myths about science and health.

Niles, Robert. “A Journalist’s Guide to the Scientific Method—and Why It’s Important.” *Online Journalism Review*. August 23, 2011. <http://www.ojr.org/a-journalists-guide-to-the-scientific-method-and-why-its-important/>. Source for the discussion of how journalism, scientific discovery, and verification are similar.

LECTURE 8

Allsides. <https://www.allsides.com/unbiased-balanced-news>.

Groups reporting into perspectives across the spectrum to point out media bias and help people understand different perspectives.

“Blue Feed, Red Feed.” *The Wall Street Journal*. <http://graphics.wsj.com/blue-feed-red-feed/>. A side-by-side comparison of what liberal and conservative Facebook feeds look like.

Buzzfeed. “You won’t believe what Obama says in this video!” YouTube. April 17, 2018. <https://www.youtube.com/watch?v=cQ54GDm1eL0>. BuzzFeed and the University of Washington’s PSA about deepfakes.

Center for Humane Technology. <https://humanetech.com/>. Nonprofit focused on shifting technology in favor of human wellbeing.

The Conversation. “Detecting ‘Deepfake’ Videos in the Blink of an Eye.” August 29, 2018. <https://theconversation.com/detecting-deepfake-videos-in-the-blink-of-an-eye-101072>. Research on how to detect a deepfake. It is important to note that deepfake technology seems to have surpassed this method in the intervening time.

Harwell, Drew. “Fake-Porn Videos are Being Weaponized to Harass and Humiliate Women: ‘Everybody Is a Potential Target.’” *The Washington Post*, December 30, 2018. https://www.washingtonpost.com/technology/2018/12/30/fake-porn-videos-are-being-weaponized-harass-humiliate-women-everybody-is-potential-target/?utm_term=.0ce09aeb6504.

Lytvynenko, Jane, and Craig Silverman. “Why the Altered Videos of Pelosi Will Never Go Away.” BuzzFeed, May 27, 2019. <https://www.buzzfeednews.com/article/janelytvynenko/altered-videos-of-pelosi-will-never-go-away>. A discussion of how technological forgery forms impressions on people whether or not they are sophisticated.

NPR. “Sandy Hook Victim’s Father Wins Defamation Suit; Alex Jones Sanctioned.” June 18, 2019.

<https://www.npr.org/2019/06/18/733880866/sandy-hook-victims-father-wins-defamation-suit-alex-jones-sanctioned>. Reporting on a lawsuit against Alex Jones.

Paul, Christopher, and Miriam Matthews. “The Russian ‘Firehose of Falsehood’ Propaganda Model. Why It Might Work and Options to Counter It.” Rand. <https://www.rand.org/pubs/perspectives/PE198.html>. An analysis of contemporary Kremlin propaganda techniques.

Seymour, Richard. “The Machine Always Wins: What Drives Our Addiction to Social Media.” *The Guardian*, August 23, 2019. https://www.theguardian.com/technology/2019/aug/23/social-media-addiction-gambling?utm_source=pocket&utm_medium=email&utm_campaign=pockethits. A deep dive into the causes of social media addiction.

Silverman, Craig. “How Teens in the Balkans Are Duping Trump Supporters with Fake News.” BuzzFeed, November 3, 2016. <https://www.buzzfeednews.com/article/craigsilverman/how-macedonia-became-a-global-hub-for-pro-trump-misinfo>. The reporting that broke the story about the Macedonian origin of fake news—for profit.

Stevenson, Alexandra. “Facebook Admits It Was Used to Incite Violence in Myanmar.” *The New York Times*, November 6, 2018. <https://www.nytimes.com/2018/11/06/technology/myanmar-facebook.html>. Analysis of how Facebook was used by the military to incite violence against the Rohingya minority in Myanmar.

Time to Log Off. <https://www.itstimetologoff.com/>. Resources for digital wellbeing.

Waddell, Kaveh. “Defending against Audio Deepfakes before It’s Too Late.” April 3, 2019. <https://www.axios.com/deepfake-audio-ai-impersonators-f736a8fc-162e-47f0-a582-e5eb8b8262ff.html>. An explanation of deepfakes and how to detect them.

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WORKSHEETS

EXERCISE WORKSHEET FOR EVALUATING ARTICLES

Questions	Notes
What is the name of the article?	
Does the article refer to people who served as sources? Is this needed in this article?	
Are the sources and citations multiple, or is only one source or document used throughout?	
Does the article accurately describe the sources and citations it is using?	
Can the sources used be trusted to be independent and not distort the truth to serve their self-interest?	
Are the sources named, or are anonymous sources used? If the latter, is there a good reason provided for the anonymity?	
Does the person quoted have good evidence for what they're saying? Would you expect them to be an authority on that topic?	

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SCIENCE AND HEALTH NEWS WORKSHEET

Questions	Notes
Does the story use hyperbolic language?	
What other studies have been done?	
What was the sample size?	
Did the study involve rodents or people?	
Do the reported findings show causation or mere correlation?	
If the story is about a medical treatment, does it talk about cost and availability?	
Does the story provide details on a treatment's benefits and harms?	
Is the story engaging in disease-mongering?	
Is the article based on research that was published in a reputable scientific journal?	
Who funded the research?	

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SCIENCE AND HEALTH NEWS WORKSHEET

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