

## **MISINFORMATION AND AI IN PUBLIC HEALTH INNOVATION CHALLENGE COURSE SYLLABUS**

*Create Innovative Solutions to Society's Complex Challenges*

**Instructor:** Program Lead: New York Academy of Sciences

**Course Time & Format:** 10 weeks; approximately 2-4 hours weekly

**Format:** Blended; Online

**Age Level:** 13 - 17 years old

### **COURSE DESCRIPTION & OBJECTIVES**

Innovation Challenges are an introduction to foundational concepts of design thinking with an emphasis on developing and testing new solutions to society's greatest challenges. The Misinformation and AI in Public Health Innovation Challenge requires students to work in self-selected, distributed teams, requiring cross-cultural communication, dynamic problem solving, deep critical thinking related to society, leadership and project management skills.

Students must first identify their project team and then work together with a mentor to apply design thinking processes to approach real-world misinformation and AI problems in an innovation challenge with the Junior Academy. While each student must identify their own role within the team, together they will learn how to identify and map out a real problem and ways to build and test solutions quickly through an iterative, scientific approach. This course requires extensive student collaboration and regular engagement through The Academy's Junior Academy and its online platform, [Launchpad](#).

### **THE CHALLENGE**

Some have argued that we are now living in a "Misinformation Age" where demonstrably false beliefs persist and spread, faster and more effectively than actual truths. Generative A.I. models — some of which are employed by search engines — can inadvertently create misinformation. These A.I.s filter the information from across the web without clear distinction between sources that are reputable and those that are not. Additionally, when this information is synthesized LLMs can sometimes fabricate false information in the form of "hallucinations." Social media platforms with their bias-driven algorithms have given bullhorns to those who lack expertise and some who even use artificial intelligence (A.I.) to produce and spread AI graphics and videos that amplify disinformation about health products, activities, and choices. The spread of misinformation and disinformation can present a profound challenge for society and can have long term health consequences. In fact, the World Economic Forum has named misinformation and disinformation

among the world's top short-term global risks two years in a row, ranking it above extreme weather<sup>1</sup>! Fortunately, this is not a hopeless fight. Fact-checkers, media literacy educators, platform designers, and even AI developers are all racing to build better tools for flagging, slowing, and correcting false claims before they spread. But technology and policy alone won't solve this — it will take people willing to think creatively about how misinformation spreads and how to interrupt it. How might you design a public awareness campaign or technical solution that helps people recognize or even stop health misinformation or disinformation so that people can make choices grounded in reliable information?

<sup>1</sup> [These are the top 10 risks in 2026: Geoeconomic confrontation ranks highest in 'age of competition'](#)

**Student Challenge: To design an innovative public awareness campaign or technical solution to shed light upon and combat health misinformation and disinformation on the internet that is intensified or enabled by Artificial Intelligence (A.I.).**

Students will work collaboratively to consider the following when designing their teams' solution:

- You may choose to focus your approach on one misinformation issue, a suite of related issues, or misinformation, in general.
- You may choose to focus your approach on the spread of misinformation on one specific social media platform, search engine, or the internet, in general.
- Your solution should be based on reliable data and scientific research.
- Make sure your solution sheds light on the problem of misinformation online and empowers your audience to do something about it.
- Consider the following questions:
  - Who is your audience?
  - How will you reach your audience?
  - Is social media the best place to center your campaign if social media is part of the problem? Should your public awareness campaign include social media or not?
  - Why should your audience trust you? How can you position yourself as a reliable, trustworthy source?
  - What behavioral change(s) will your campaign attempt to promote?
  - AI is part of the problem. Could it also be part of your solution?

## LEARNING OBJECTIVES

**INNOVATION CHALLENGE LEARNING OBJECTIVES** *At the end of this course, students will be able to:*

- Develop critical thinking and problem-solving skills through brainstorming techniques to develop ideas and design a solution to a complex problem.

- Develop their own arguments and analyze competing perspectives to a complex problem with supporting evidence.
- Develop a deeper, personal civic identity and clearly identify their role in their community.
- Develop a solution that could play a part in transforming a specific societal need regarding a larger issue that is transferable to a specific community and larger global community.
- Use data and insights of an inquiry to answer a research question using scientific terms in charts, tables, or graphs.
- Utilize a social justice lens when applicable to interpret the data and critically think about which groups are not represented around decision making.
- Effectively communicate ideas, data and insights using various forms of media.
- Effectively collaborate with team members with empathy and mutual respect, and develop an expanded perspective about how people from other countries see the world.
- Effectively communicate challenge specific variables that impact the environment, society, and economy including examples of the effect on local communities.
- Understand how to apply Design Thinking methods to understand what users need, and how to develop solutions to meet those needs.
- Learn how to actively listen, work through any disagreements, and solicit input from people in creative ways to generate new ideas.
- Learn how to test ideas and develop rapid prototypes.
- Identify corresponding careers connected to Innovation Challenge.

## COURSE OUTLINE

| TIME                                    | TOPIC                                                                                                                                                                               | ASSIGNMENTS                                                                                                                                                                                                                            | FORMAT        |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Week 1                                  | <ul style="list-style-type: none"> <li>• Getting Started w/Junior Academy</li> <li>• Onboarding</li> </ul>                                                                          | <ul style="list-style-type: none"> <li>• Join <a href="#">Launchpad Platform</a></li> <li>• Review <a href="#">Junior Academy Orientation</a></li> <li>• Attend Virtual Kick Off Week</li> <li>• Complete Course Pre-Survey</li> </ul> | Individual    |
| <b>PHASE 1</b> Challenge Team Formation |                                                                                                                                                                                     |                                                                                                                                                                                                                                        |               |
| Week 2                                  | Challenge introduction <ul style="list-style-type: none"> <li>• Background on your Challenge</li> <li>• Finding Mentors &amp; Experts</li> <li>• Reaching out to experts</li> </ul> | <ul style="list-style-type: none"> <li>• Complete Required Weekly Reading</li> <li>• Engage in Launchpad Discussions</li> <li>• Complete activities found in resource library</li> </ul>                                               | Collaborative |
| Week 3                                  | Team Building <ul style="list-style-type: none"> <li>• Forming Your Team</li> </ul>                                                                                                 | <ul style="list-style-type: none"> <li>• Engage in Launchpad Discussions</li> <li>• Hold 1st Team Meeting</li> </ul>                                                                                                                   | Collaborative |

|                                                           |                                                                                                                                                                                                                         |                                                                                                                                                                                                                                       |                             |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
|                                                           | <ul style="list-style-type: none"> <li>Holding a Virtual Team Building</li> <li>Creating a Team Comm's Plan</li> </ul>                                                                                                  | <ul style="list-style-type: none"> <li>Complete Required Weekly Reading</li> <li>Due Milestone #1: <a href="#">Team Dynamics</a></li> </ul>                                                                                           |                             |
| <b>PHASE 2</b> Research, Brainstorm & Plan                |                                                                                                                                                                                                                         |                                                                                                                                                                                                                                       |                             |
| Week 4                                                    | Researching <ul style="list-style-type: none"> <li>Gathering relevant and diverse materials, articles, books, and sources</li> <li>Developing research questions and interviewing</li> </ul>                            | <ul style="list-style-type: none"> <li>Engage in Launchpad Discussions</li> <li>Engage/Meet with your Team</li> <li>Complete Required Weekly Reading</li> </ul>                                                                       | Individual<br>Collaborative |
| Week 5                                                    | Brainstorming <ul style="list-style-type: none"> <li>Team Concept Brainstorm</li> <li>Develop How "Might We" Ideas</li> <li>Building Team Empathy</li> </ul>                                                            | <ul style="list-style-type: none"> <li>Engage in Launchpad Discussions</li> <li>Engage/Meet with your Team</li> <li>Complete Required Weekly Reading</li> </ul>                                                                       | Collaborative               |
| Week 6                                                    | Design & Plan <ul style="list-style-type: none"> <li>Categorizing &amp; Bundling Ideas</li> <li>Deciding &amp; creating your concept</li> <li>Developing a user testing plan</li> </ul>                                 | <ul style="list-style-type: none"> <li>Engage in Launchpad Discussions</li> <li>Engage/Meet with your Team</li> <li>Complete Required Weekly Reading</li> <li>Due: Milestone #2: <a href="#">Design &amp; Test Plan</a></li> </ul>    | Individual<br>Collaborative |
| <b>PHASE 3</b> Build, Test & Analyze                      |                                                                                                                                                                                                                         |                                                                                                                                                                                                                                       |                             |
| Week 7                                                    | Build <ul style="list-style-type: none"> <li>Creating a Prototype</li> <li>Build storyboard &amp; journey map</li> <li>Identifying your variables</li> <li>Rapid Prototyping</li> </ul>                                 | <ul style="list-style-type: none"> <li>Engage in Launchpad Discussions</li> <li>Engage/Meet with your Team</li> <li>Complete Required Weekly Reading</li> </ul>                                                                       | Collaborative               |
| Week 8                                                    | Test & Analyze <ul style="list-style-type: none"> <li>Conducting User Testing</li> <li>Getting User Feedback</li> <li>Analyzing your data Results</li> </ul>                                                            | <ul style="list-style-type: none"> <li>Engage in Launchpad Discussions</li> <li>Engage/Meet with your Team</li> <li>Complete Required Weekly Reading</li> <li>Due: Milestone #3 <a href="#">Analyze Results</a></li> </ul>            | Collaborative               |
| <b>PHASE 4</b> Iterate & Develop Final Projects           |                                                                                                                                                                                                                         |                                                                                                                                                                                                                                       |                             |
| Week 9                                                    | Iterate <ul style="list-style-type: none"> <li>Modifying your concept design based on your results</li> <li>Refining &amp; re-test your prototype</li> </ul>                                                            | <ul style="list-style-type: none"> <li>Engage in Launchpad Discussions</li> <li>Engage/Meet with your Team</li> <li>Complete Required Weekly Reading</li> </ul>                                                                       | Individual<br>Collaborative |
| Week 10                                                   | Develop Final Project <ul style="list-style-type: none"> <li>Creating draft of Final Project</li> <li>Project Feedback &amp; revision</li> <li>Submitting Final Project</li> <li>Complete Course Post-Survey</li> </ul> | <ul style="list-style-type: none"> <li>Due: <a href="#">Executive Summary</a></li> <li>Due: <a href="#">Final Team Presentation</a></li> <li>Due: <a href="#">Personal Reflection</a></li> <li>Complete Course Post-Survey</li> </ul> | Individual<br>Collaborative |
| New York Academy Challenge Final Project Review & Grading |                                                                                                                                                                                                                         |                                                                                                                                                                                                                                       |                             |

| <b>COURSE ASSIGNMENTS</b>                                                                                                         | <b>% of FINAL GRADE</b> |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Milestone #1: Team Dynamics: This assignment is focused on team building and planning for how students will work together.        | 10%                     |
| Milestone #2: Design & Test Plan: This assignment is focused on the Team's proposed solution, hypothesis and test plan.           | 10%                     |
| Milestone #3: Build, Test & Analyze: This assignment is focused on building, testing and analyzing data related to your solution. | 10%                     |
| Team Collaboration & Online Engagement throughout course                                                                          | 20%                     |
| Final Presentation, Executive Summary & Personal Reflection<br><a href="#">Final Presentation Rubric</a>                          | 50%                     |
| (100%) <b>Final Grade</b>                                                                                                         |                         |

## GRADING POLICY

**Late-work policy:** Milestones 1–3 are allowed to be submitted late for point deduction. Late submissions of the Final Solution Presentation for this course will not be accepted after the due date unless previously arranged with **the Academy** for extenuating circumstances. It is important to stay up-to-date on assignments since much of the work builds on previous assignments and will impact students' ability to be effective in providing solutions for their teams' projects.

**Re-grade policy:** If a student thinks there has been a technical error in the grading of an assignment, they should email program administration at the Academy within one week of receiving the graded assignment, otherwise the assignment will not be regraded. Feedback is provided upon request.

## REQUIRED READING LIST

Students are expected to read and refer to a wide variety of texts throughout this course; all of which can be found in the Launchpad Resource Library.

Please see a sample of the Resource Library reading list for this challenge:

### Week 1

[Launchpad Platform](#), Launchpad

[Junior Academy Orientation](#), Launchpad

### Week 2

Misinformation and AI in Public Health Challenge Background, Launchpad

[Disinformation and public health](#) (World Health Organization)

[AI and Misinformation](#) (University of Florida College of Journalism & Communications)

### Week 3

[What is Human Centered Design?](#), Video Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Design Thinking for Problem Solving](#), Video Design Kit, Innovation, Design, Engineering & Organization (IDEO)

### Week 4

[Misinformation](#) (W.K. Kellogg Foundation)

[Misinformation vs Disinformation: Understanding the difference online](#) (Center for Countering Digital Hate)

[How does generative AI work?](#) Video (Utrecht University)

[Explained: Generative AI](#) (MIT News)

[A jargon-free explanation of how AI large language models work](#) (ARS Technica)

[AI Chatbots Can Run With Medical Misinformation, Study Finds, Highlighting the Need for Stronger Safeguards](#) (Mt Sinai)

[Fabricated citations in the age of AI: A wake-up call for editors, reviewers, and authors](#) (Journal of Dental Sciences)

[Hallucinated citations are polluting the scientific literature. What can be done?](#) (Nature)

[Judge Condemns RFK Jr's HHS for Using Fake Studies](#) (Newsweek)

[Deepfake Doctors: How AI Spreads Medical Disinformation](#) (Medscape)

[The Fake Influencers Selling Wellness on Your Feed](#) video (New York Times - no paywall)

[AI deepfakes of real doctors spreading health misinformation on social media](#) (The Guardian)

[Opinion: The rise of AI-generated medical misinformation threatens agriculture](#) (Agripulse)

[How false news can spread - Noah Tavlin](#) Video (TED-ED)

[Study: On Twitter, false news travels faster than true stories](#) (MIT News)

[The spread of new and false news online](#) (Science)

[How online misinformation spreads](#) (Knowable Magazine)

[Fake News: How Fake News Spreads](#) (University of Victoria)

[Cognitive manipulation and AI will shape disinformation in 2026. Here's how to build resilience](#) (World Economic Forum)

[Social histories of public health misinformation and infodemics: case studies of four pandemics](#) (The Lancet Infectious Diseases)

[Equipping health workers, media to fight misinformation on cholera](#) (World Health Organization)

[Infodemic](#) (World Health Organization)

[Fake News: Health Misinformation](#) (University of Victoria)

[Plan your own campaign](#) (World Health Organization)

[Designing Effective Health Campaigns: Strategies for Public Health Educators](#) (Marymount University)

[How to Plan a Public Health Campaign: A Step-by-Step Guide for Organizations That Need Real-World Results](#) (Placebased Media)

[Interviewing Experts](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Interviewing Individuals](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Interviewing Groups](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

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**Week 5**

[How Might We](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Brainstorming Rules](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[How to Facilitate a Brainstorm](#), Stanford D School, 2020

**Week 6**

[Bundling Ideas](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Doing a Gut Check](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Creating a Concept](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

**Week 7**

[Determine What to Prototype](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Rapid Prototyping](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Prototype to Test](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Identify a Variable](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Storyboards & Journey Maps](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Tinkercad](#), Autodesk

**Week 8**

[Get Feedback](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Testing with Users](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[Research Methods](#), Launchpad

**Week 9 – Week 10**

[Integrate Feedback & Iterate](#), Design Kit, Innovation, Design, Engineering & Organization (IDEO)

[How to Create a Presentation](#), Launchpad

[How to Create Video Presentations](#), Movavi

[Presentation Guidelines](#), Launchpad