STEVENS INITIATIVE MENTAL 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 Mental 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 the real-world problems of mental health in adolescents 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

Mental well-being allows people to build healthy relationships, cope with the everyday stresses of life, hone skills and abilities, and accomplish personal goals in school, work, and the community. Unfortunately, one in seven adolescents (10-19-year-olds), worldwide, experience mental health conditions that can have serious impacts, including depression and anxiety. Meanwhile, parents and educators are devouring and discussing books like "The Anxious Generation" by John Haigt and wondering how social media and smart phones are impacting their children and students and what to do about it. Not only can mental health challengesissues contribute to a lower quality of life for young people, if untreated, many mental health conditions can continue into adulthood. In general, the teen years brings with it new stressors and emotional challenges that can be difficult to navigate, even for those without mental health conditions At the same time, the developing adolescent brain may be especially vulnerable and sensitive to the stressors and the

results can be the result of poor mental well-being. Despite the scope of the challenge, prevention and early detection have been proven effective in supporting mental well-being of young people and in connecting adolescents with help when their mental health needs require professional support.

One promising approach to improving mental well-being in adolescents is through a public health lens. In approaching the mental well-being of the community, rather than as an individual challenge or responsibility, public health efforts and education could support families and schools, encourage young people to make healthy choices, and even empower teens to support their friends and classmates to ask for professional help when they recognize that they are struggling. How might community-based public health strategies be leveraged to provide adolescents,their families, and community members with the tools and understanding they need to strengthen and maintain youth mental well-being? What could be done to increase awareness, destigmatize the need for help and support, provide easier access to resources and solutions, and/or create supportive environments for overall mental well-being for young people?

Student Challenge: **To design an innovative public health solution that promotes overall mental health and well being amongst adolescents.**

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

- How can you include youth voices and perspectives in designing your solution?
- How can your solution empower adults (caregivers, teachers, community members, etc.) to play an active role and provide resources and expertise?
- How will your solution make mental health resources more accessible?
- How will your solution address equity issues in mental health?
- How might your solution reduce stigma around mental health challenges or conditionsissues? How will it change social norms?
- Who will your solution target or empower?
- How will your solution contribute to increasing overall well-being for adolescents?
- How might your solution address mental health challenges issues in your own community or region? How could it be scaled to work in other communities or regions?
- What political or social structures could be addressed to support 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	- Getting Started w/Junior Academy - Onboarding	- Join Launchpad Platform - Review Junior Academy Orientation - Attend Virtual Kick Off Week - Complete Course Pre-Survey	Individual
PHASE 1 Challenge Team Formation			
Week 2	Challenge introduction - Background on your Challenge - Finding Mentors & Experts - Reaching out to experts	- Complete Required Weekly Reading - Engage in Launchpad Discussions - Complete activities found in resource library	Collaborative
Week 3	Team Building Forming Your Team	- Engage in Launchpad Discussions - Hold 1st Team Meeting	Collaborative

	● Holding a Virtual Team Building ● Creating a Team Comm's Plan	● Complete Required Weekly Reading ● Due Milestone #1: Team Dynamics	

PHASE 2 Research, Brainstorm & Plan

Week 4	Researching ● Gathering relevant and diverse materials, articles, books, and sources ● Developing research questions and interviewing	● Engage in Launchpad Discussions ● Engage/Meet with your Team ● Complete Required Weekly Reading	Individual Collaborative
Week 5	Brainstorming ● Team Concept Brainstorm ● Develop How "Might We" Ideas ● Building Team Empathy	● Engage in Launchpad Discussions ● Engage/Meet with your Team ● Complete Required Weekly Reading	Collaborative
Week 6	Design & Plan ● Categorizing & Bundling Ideas ● Deciding & creating your concept ● Developing a user testing plan	● Engage in Launchpad Discussions ● Engage/Meet with your Team ● Complete Required Weekly Reading ● Due: Milestone #2: Design & Test Plan	Individual Collaborative

PHASE 3 Build, Test & Analyze

Week 7	Build ● Creating a Prototype ● Build storyboard & journey map ● Identifying your variables ● Rapid Prototyping	● Engage in Launchpad Discussions ● Engage/Meet with your Team ● Complete Required Weekly Reading	Collaborative
Week 8	Test & Analyze ● Conducting User Testing ● Getting User Feedback ● Analyzing your data Results	● Engage in Launchpad Discussions ● Engage/Meet with your Team ● Complete Required Weekly Reading ● Due: Milestone #3 Analyze Results	Collaborative

PHASE 4 Iterate & Develop Final Projects

Week 9	Iterate ● Modifying your concept design based on your results ● Refining & re-test your prototype	● Engage in Launchpad Discussions ● Engage/Meet with your Team ● Complete Required Weekly Reading	Individual Collaborative
Week 10	Develop Final Project ● Creating draft of Final Project ● Project Feedback & revision ● Submitting Final Project ● Complete Course Post-Survey	● Due: Executive Summary ● Due: Final Team Presentation ● Due: Personal Reflection ● Complete Course Post-Survey	Individual Collaborative
	New York Academy Challenge Final Project Review & Grading		

COURSE ASSIGNMENTS	% of FINAL GRADE
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 Final Presentation Rubric	50%
	(100%) **Final Grade**

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

       Mental Health Challenge Background, Launchpad

Mental Health (Pan American Health Organization / World Health Organization)

Mental Health (American Psychological Association)

Mental health of adolescents (WHO)

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

- About Mental Health (Mental Health Foundation)
- Concept of mental health and mental well-being, it's determinants and coping strategies
- Schlack R, Peerenboom N, Neuperdt L, Junker S, Beyer AK. The effects of mental health problems in childhood and adolescence in young adults: Results of the KiGGS cohort. J Health Monit. 2021 Dec 8;6(4):3-19.
- Qushua N, Smith-Appelson J, Sarraf D, Stark L, Seff I. Seeking approval first: Mental health care utilization and engagements among MENA adolescents in the United States, Children and Youth Services Review, Volume 155, December 2023
- The Biggest Barriers to Accessing Youth Mental Health Care
- Barriers to Mental Health: The Middle Eastern Experience (National Alliance on Mental Illness)
- Wahdi AE, James C, Nadhira DA, Fine SL, Barriers and Facilitators of Seeking Help for Mental Health Challenges Among Adolescents Across 13 Countries: A Qualitative Investigation, Journal of Adolescent Health, Volume 77, Issue 3, 421 - 427
- Alhumaidan NI, Alotaibi TA, Aloufi KS, Althobaiti AA, Althobaiti NSA, Althobaiti K, Almutiri WA, Alhaqbani K, Alboqami T, Albeheiri L, Alfaisal NF, Barriers to Seeking Mental Health Help in Saudi Arabia: A Systematic Review, Cureus. 2024 May 15;16(5):e60363
- Stress in Teens and Young Adults (The American Institute of Stress)
- How to help children and teens manage their stress (American Psychological Association)
- Build a Teen Stress Management Plan
- Russell D. Romeo, The impact of stress on the structure of the adolescent brain: Implications for adolescent mental health, Brain Research, Volume 1654, Part B, 2017, Pages 185-191.
- 5 steps to mental wellbeing (National Health Service - UK)
- Five Ways to Wellbeing: New Applications, New Ways of Thinking (New Economics Foundation)
- Mental health: Know when to get help (Mayo Clinic)
- Knowing When to Seek Treatment (Johns Hopkins)
- Social Media and Mental Health in Children and Teens (Johns Hopkins)
- Raising Digitally Savvy Kids in a Screen-Filled World (Dubai 'one)
- Online connections hold double-edged impact on teen mental health, Texas A&M study finds
- Odgers CL, Jensen M, Adolescent Mental Health in the Digital Age: Facts, Fears and Future, Journal of Child Psychology and Psychiatry, 2020 Jan 17;61(3):336–348
- Youth mental health: The impacts of pressures and stigma
- Routine mental health talks with kids help make home a stigma-free zone
- Villatoro AP, Dupont-Reyes MJ, Phelan JC, Link BG, 'Me' vs. 'Them': How Mental Illness Stigma Influences Adolescent Help-Seeking Behaviors for Oneself and Recommendations for Peers, Stigma Health. 2022 Jun 6;7(3):300–310

- Mohammadzadeh M, Awang H, Mirzaei F, Mental health stigma among Middle Eastern adolescents: A protocol for a systematic review, Journal of Psychiatric and Mental Health Nursing. 2020 Dec;27(6):829–837
- Factors that affect mental health
- Mental Health First Aid
- 2025 Mental Health Awareness Month - Action Guide
- Find a Helpline (free, confidential support from a helpline or hotline near you - global)
  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)

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

Bunding 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