GRAY ASSOCIATES

# Five Emerging Programs for 2023

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# Today's presenters

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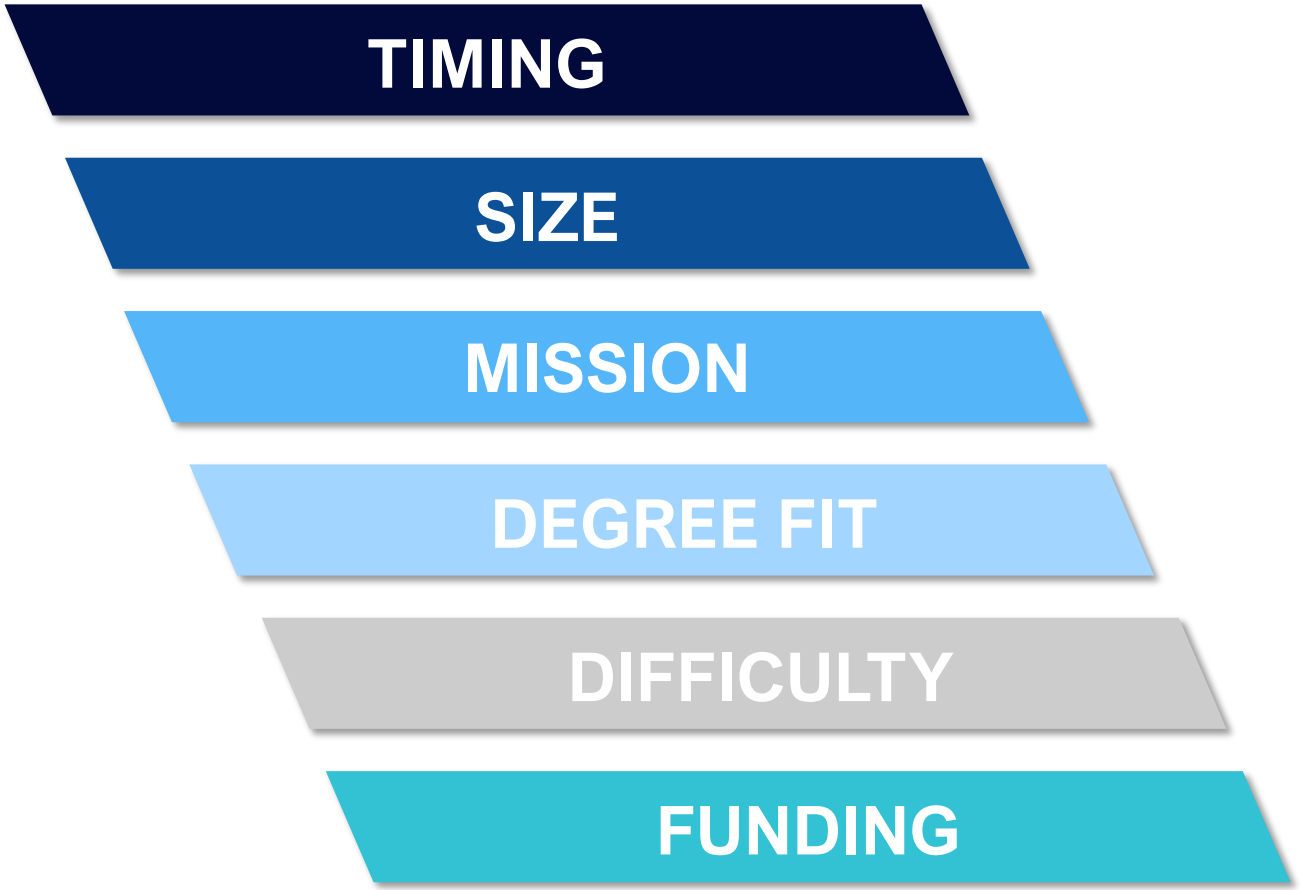
## Early Stages

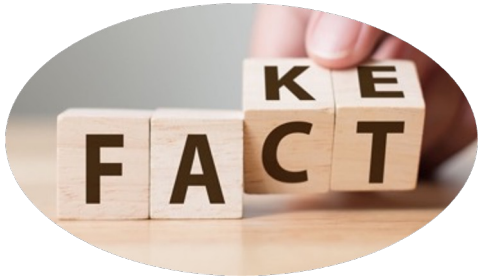
## Forming

## Speculative

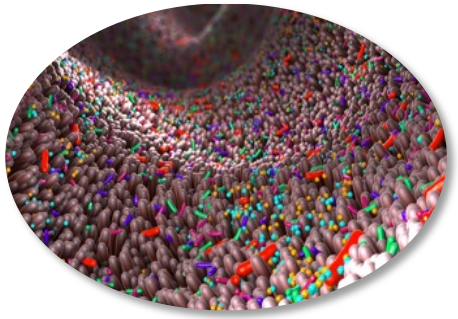
# When evaluating emerging fields, consider these elements:



# Where are they now?





# Creator Economy

# The creator economy is driven by the rise of social media commerce.

- The creator economy was estimated at **$104B** in 2022.
- 84% of 18-29-year-olds use social media.
- 68% of consumers purchased through social media.
- Social commerce is growing 3X faster than traditional channels.
- Social commerce expects to reach **$80B** in the US by 2025 and $2T worldwide.

***"Their posts seem frivolous. Their business isn't."***
**– The Economist**

## 50 Million Creators Worldwide

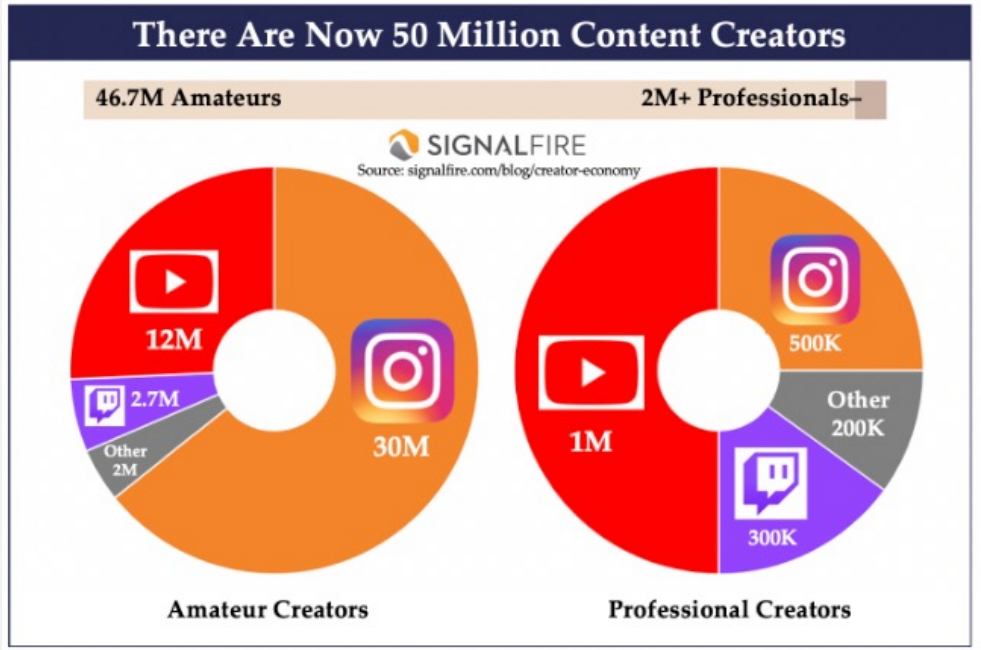
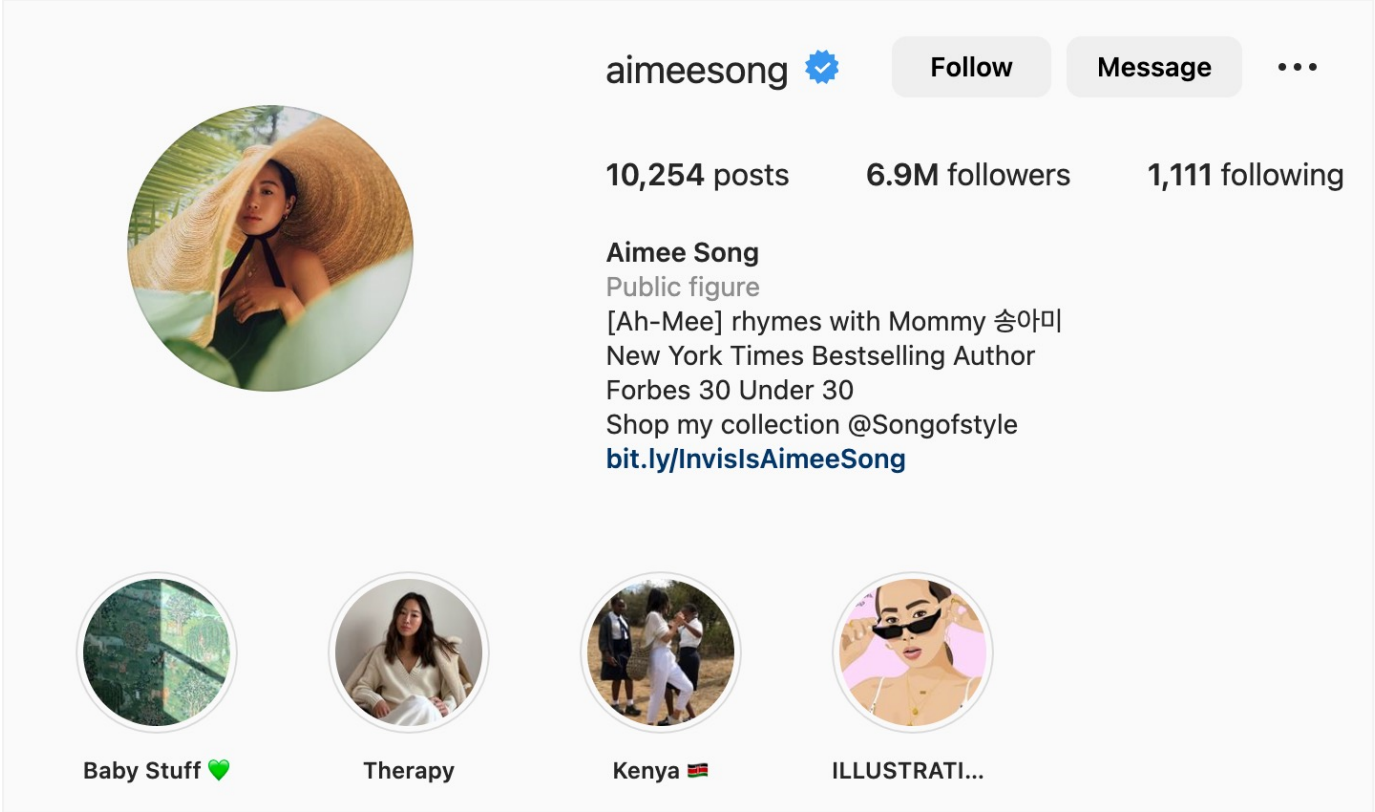



Image source: SignalFire: Creator Economy Market Map

# Social media commerce is driven by independent creators.

- These include “influencers,” bloggers, vloggers, writers, gamers, artists, and other content builders.
- Creators monetize content, activities, skills, knowledge, and personal brands.
- They earn income from consumers, advertisers, and affiliate partners.
- **Media platforms** such as Instagram, YouTube, TikTok, and Twitch connect creators with their audiences.
- **Content creation tools** like iMovie, Adobe, and Anchor help creators produce professional content.



# The creator economy is driving demand for new skills and creating new jobs.

- Over 18,900 firms provide influencer marketing services.
- 77% of marketers had an influencer marketing budget in 2022, compared to 37% in 2017.
- Marketers need employees with digital and social media marketing skills.
- Creators need a wide array of skills.


# 21% of creators earn at least $50k.

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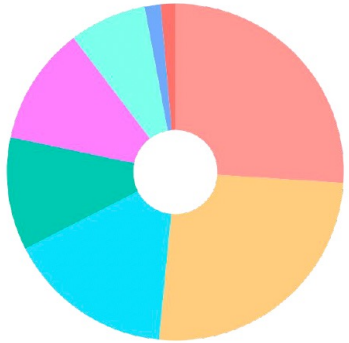
## Earning Power

1.40% of Influencers Make Over $1M



| Salary | % |
|---|---|
| Under $1K | 26.02% |
| $1K - 10K | 25.51% |
| $10K - $25K | 15.94% |
| $25K - $50K | 10.84% |
| $50K - $100K | 11.35% |
| $100K - $500K | 7.40% |
| $500K - $1M | 1.53% |
| Over $1M | 1.40% |

Sources: Creator Earnings: Benchmark Report 2022, InfluencerMarketingHub.com

# More kids want to be YouTube stars than astronauts.

## Creators, marketers, and employers want to teach them how.

LinkedIn Learning

Launching Your Creator Business


Source: linkedin.com/learning/launching-your-creator-business

NBCUniversal

Creator Accelerator

Investing in the next generation of NBCUniversal talent now.

Source: nbcuniversal.com/creatoraccelerator

NASACADEMY.

Creator Accelerator Program

01 Master the Art of Social Media Storytelling

02 The Basics of Mobile Video Creation for All Social Platforms

03 Create Better Videos and Get More Views

04 Grow Your Channels and Build Your Community

05 Make Money With Content Creation and Get Job Opportunities

Source: nascademy.com

# Colleges and universities are beginning to take notice.

## Institutions are including digital marketing and social media in the curriculum.

- Some are launching standalone programs across award levels.
- Others are adding concentrations to existing marketing and business programs.

**2022 New Program Announcements**

| Award Level | Institution | Program |
|---|---|---|
| Undergraduate Certificate | Central Lakes College | Digital Marketing |
| | County College of Morris | Social Media and Digital Marketing |
| | Kansas State University | Digital and Social Media |
| | Lock Haven University | Social Media Management |
| | Mount Saint Mary's University | Digital Marketing |
| | Wayne Community College | Digital Marketing Communication |
| Associate | Davis College | Digital Marketing Analytics |
| | Northeast Lakeview | Digital and Social Media Communication |
| | Northwest College | Social Media Producer |
| Bachelor's | Belmont University | Social Media Marketing and Communication |
| | Mount Vernon Nazarene Univ | Social Media Management |
| | Paier College | Social Media Marketing |
| Master's | Montclair State University | Digital Marketing |
| | University of West Georgia | Social Media and Entertainment |

# Institutions are starting to offer programs for creators themselves.

## Owens Community College launched a Media Influencer Certificate.

### Media Influencer Certificate

#### 1st Semester

- ENG 111 - Composition I *Ohio Transfer Module Course **Credits:** 3(Lec: 3)

  **or**
- ENG 111P - Composition I Plus *Ohio Transfer Module Course **Credits:** 4(Lec: 4)

- IST 126 - Introduction to HTML **Credits:** 2(Lec: 2)
- SPE 110 - Intro to Mass Media **Credits:** 3(Lec: 3)
- BMT 135 - Introduction to Digital Video **Credits:** 3(Lec: 2 Lab:3)
- BUS 101 - Contemporary Business **Credits:** 3(Lec: 3)
- CRT 105 - Micro Concepts & Apps for Mac **Credits:** 1(Lec: 1)
- IST 124 - Internet Research Basics **Credits:** 1(Lec: 1)

#### 2nd Semester

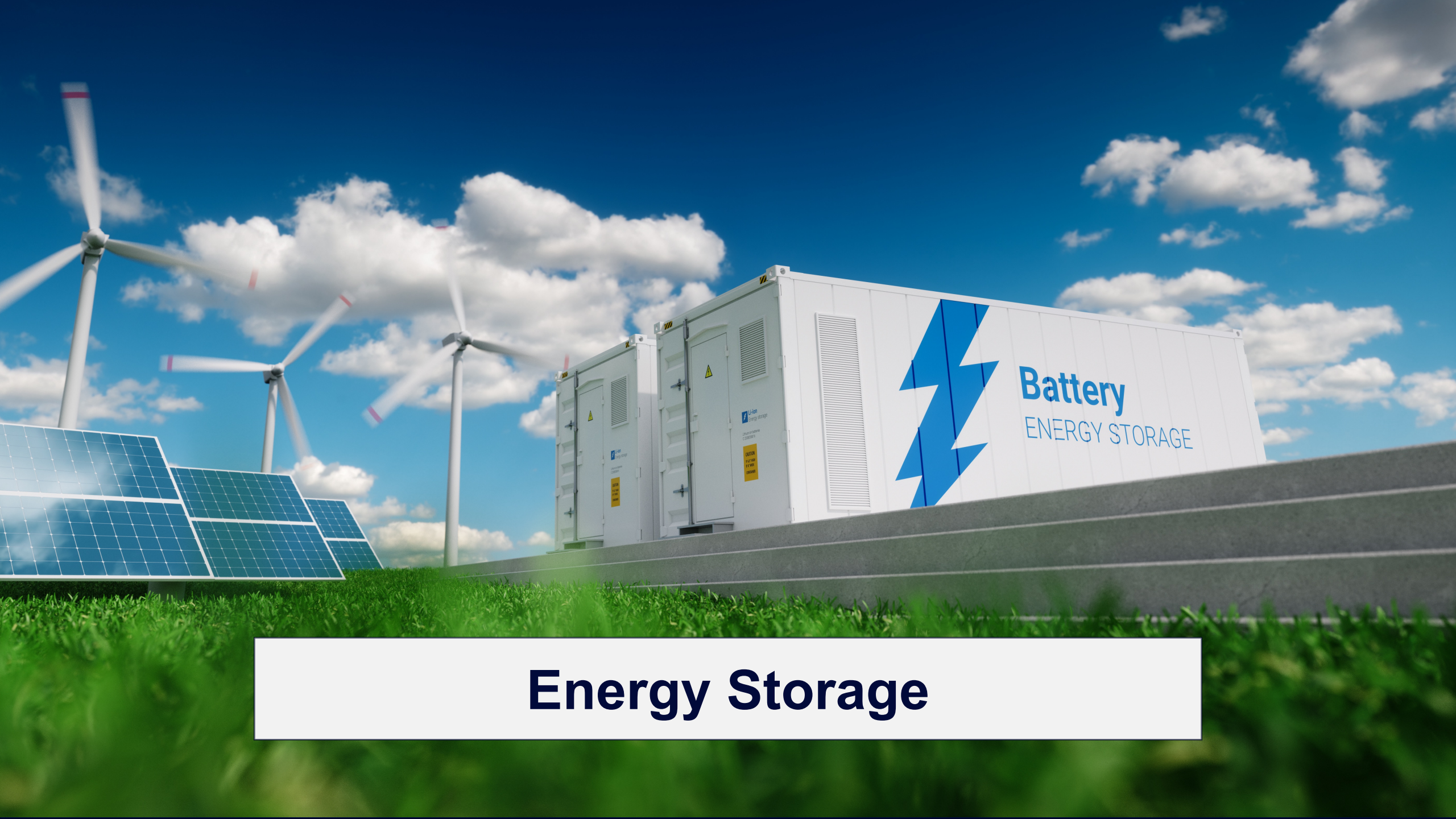
- BMT 111 - Media Writing **Credits:** 3(Lec:3)
- SPE 101 - Public Speaking *Ohio Transfer Module Course **Credits:** 3(Lec: 3)
- PHO 245 - Visual Storytelling **Credits:** 3(Lec: 2 Lab: 3)
- IST 228 - Web Imaging **Credits:** 3(Lec: 3)
- IST 267 - Web Development Tools **Credits:** 3(Lec: 3)
- COM 101 - Principles of Advertising **Credits:** 3(Lec: 3)
- IDS 270 - Media Influencer Capstone **Credits:** 2(Lec: 2)

Source: https://www.owens.edu/academics/program/media-influencer-cert.html

# The NIL ruling is creating opportunities for student-athletes…and institutions.

- Arkansas State University launched an undergraduate certificate for Athlete Name, Image, and Likeness (NIL) Promotion

***"Seemingly overnight, college athletes have found themselves sitting on a social media gold mine"*** **– NBC News**




# Energy Storage

# Energy storage needs are everywhere.

- Cars
- Computers
- Internet
- Phones
- Homes
- Commercial buildings
- Hospitals
- Schools
- Stores
- Electronics

# Energy storage has been evolving for hundreds of years.

- Duration:
  - Short-term storage: Batteries
  - Long-term storage: mechanical, electrical, and thermal
- Reliability:
  - Available and easy to distribute
  - Safe to use
  - Rechargeable
- Size:
  - Optimized
  - Density
  - Scalability

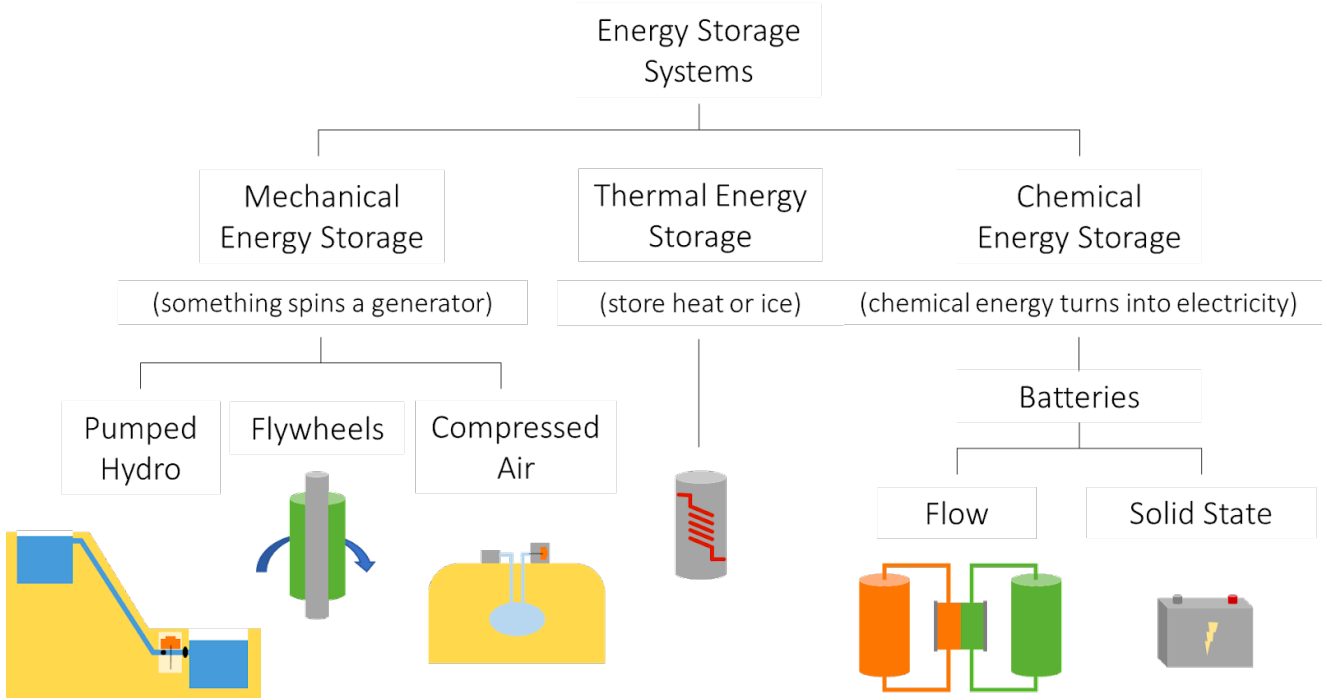



Image: https://energy.ri.gov/renewable-energy/energy-storage-0

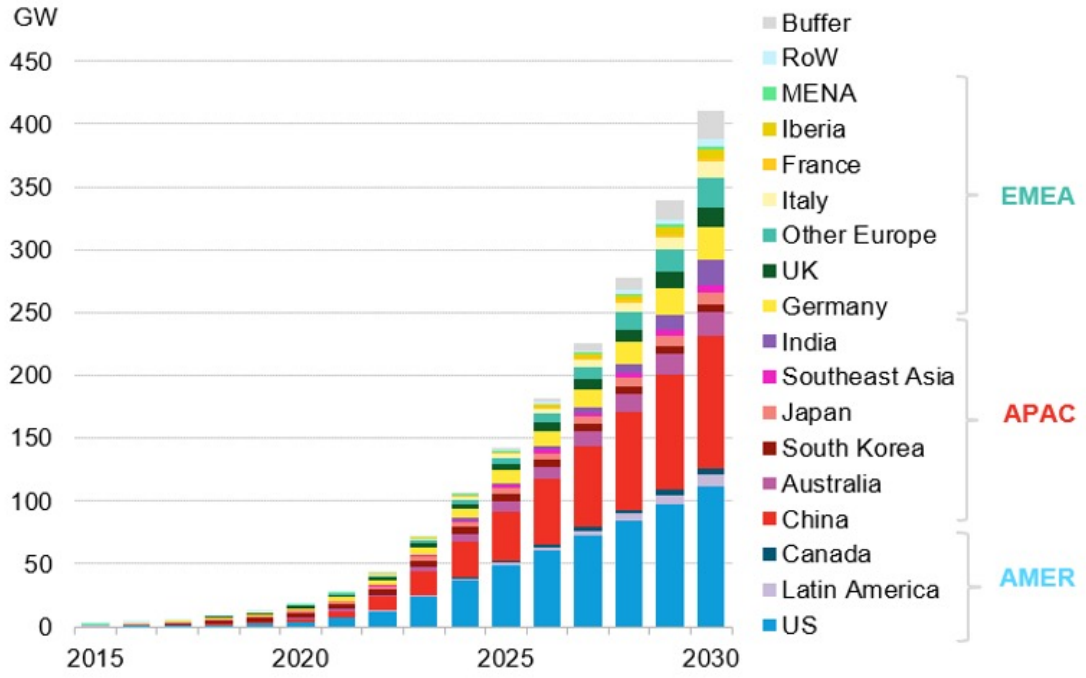
# What might energy storage look like in the future?


Image: Yonggang Huang / Northwestern University

# Improving energy storage is critical to transitioning to renewable energy.

- Globally, only 3-4% of power capacity is currently stored.
- Storage capacity must increase to meet growing demand.
- Battery demand is projected to grow 30% annually by 2030.
- Advanced storage capabilities can improve security, lower costs, and mitigate climate change.

**Figure 1: Global cumulative energy storage installations, 2015-2030**




*Source: BloombergNEF. Note: "MENA" refers to the Middle East and North Africa; "RoW" refers to the rest of the world. "Buffer" represents markets and use cases that BNEF is unable to forecast due to lack of visibility.*

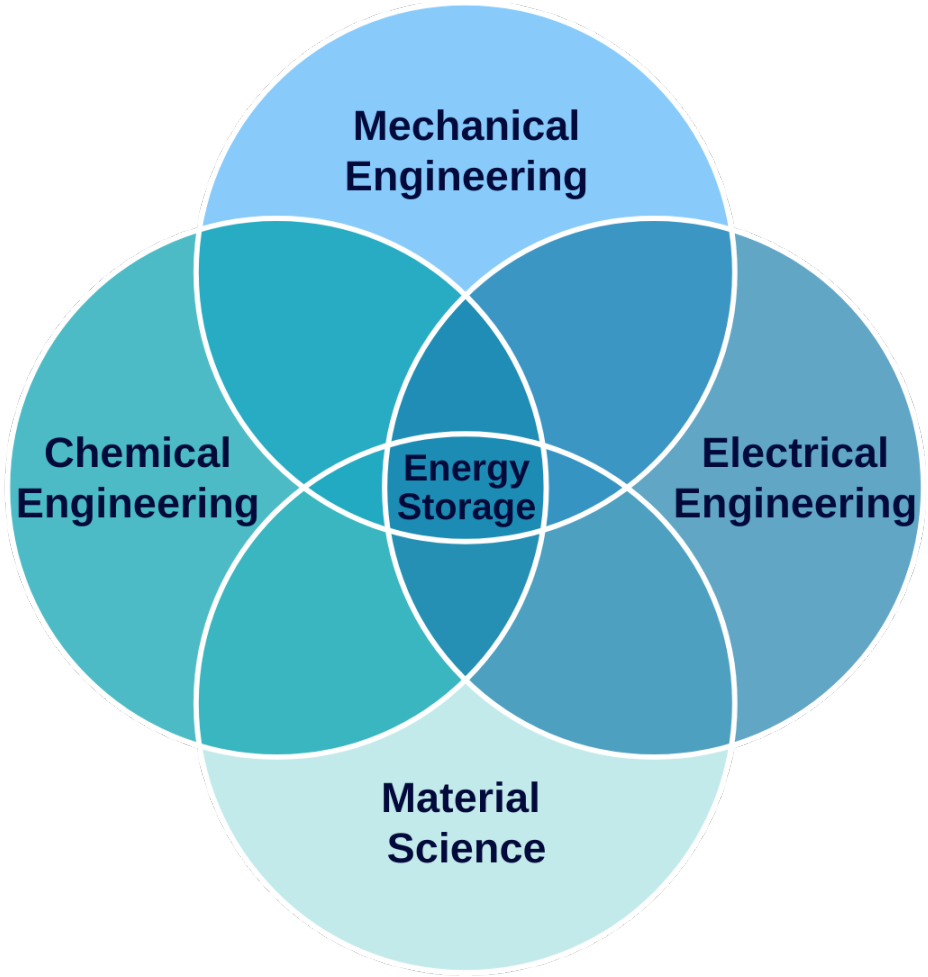
# Governments and international organizations are sponsoring research.

ENERGY earthshots | Storage™
U.S. DEPARTMENT OF ENERGY

- $505 million initiative
- Aims to reduce energy storage costs by 90%
- Focus on wide range of storage technologies

# Implications for Higher Education

- University of Michigan: Certificate in Current Technologies and Emerging Technologies – **Electrical Energy Storage**
- University of North Dakota: **Energy Storage Systems** Graduate Certificate
- University of Texas at Arlington: Bachelor of Science **Resource and Energy Engineering**
- University of Nevada, Reno: Minor in **Batteries and Energy Storage Technologies**




# Climate Change Adaptation

# Not mutually exclusive…but both are necessary.

## Climate Change Mitigation

**Prevent climate change from happening (or getting worse) by addressing, and mitigating, its causes**

## Climate Change Adaptation

**Acclimate and adapt to the shifting environmental conditions brought about by climate change**

# The threats are real.

- Sea level rise
- Extreme heat, lasting longer
- Drought and desertification
- Wildfire seasons getting longer
- More extreme weather (e.g., hurricanes)
- Floods and storm surge
- Rise in mosquito-borne disease
- Species threatened

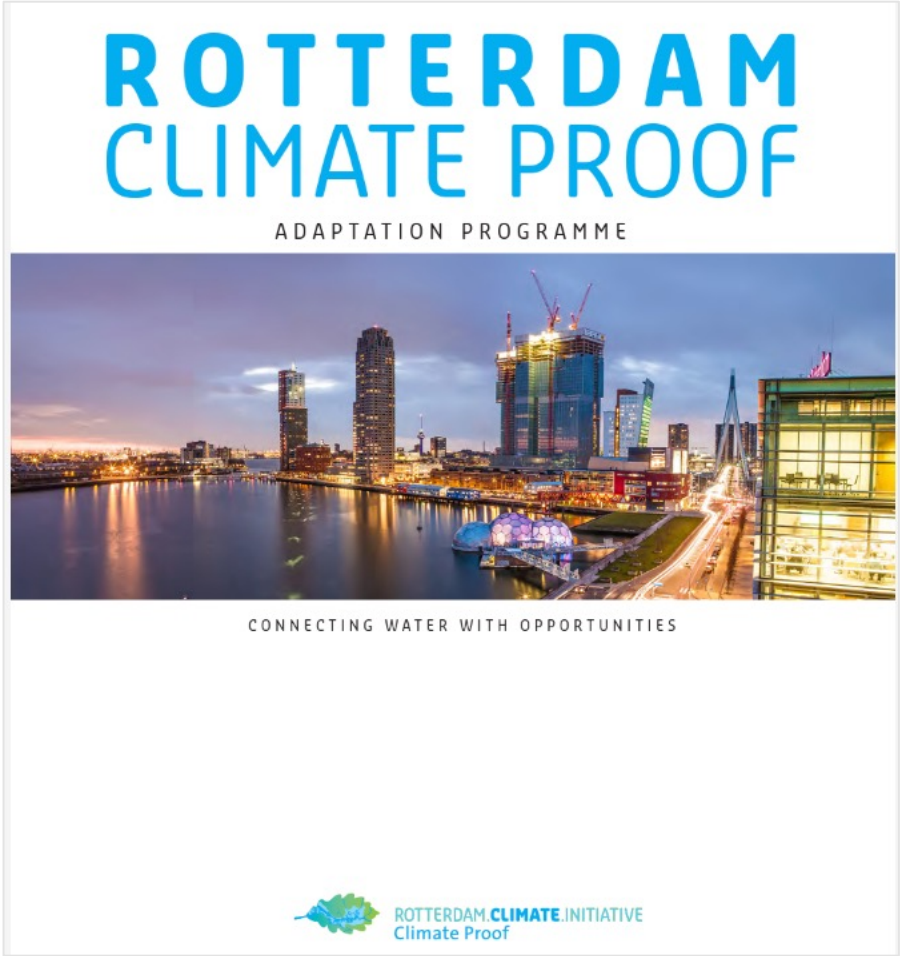
# Structural and physical adaptation

- Seawalls to protect against storm surge
- Green roofs to moderate urban heat islands
- Raised roads and highways
- Houses built on stilts
- Hurricane-proof buildings
- Adaptive building materials
- Early warning systems
- Reforestation and habitat conservation
- Drought-resistant crops


Image: https://www.theverge.com/2014/10/1/6874925/can-a-massive-seawall-save-new-york-from-flooding

# Institutional adaptation

- Local, state, and national adaptation plans
- Public health strategies
- Zoning regulations and building codes
- Economic and investment strategies
- Private insurance and reinsurance



# Social adaptation

- Behavioral changes
- Relocation
- Occupational change

Image: NYT - Emily Farnsworth/U.S. Air Force/Alaska National Guard, via Associated Press

# Opportunities for higher education

- University of Michigan College of Engineering: **Climate Change Solutions Graduate Certificate**
- University of  Maryland School of Public Policy: **Graduate Certificate in Climate Policy and Action**
- University of Notre Dame:  **Notre Dame Global Adaptation Initiative Research Center (ND-GAIN)**

# Science of Well-Being

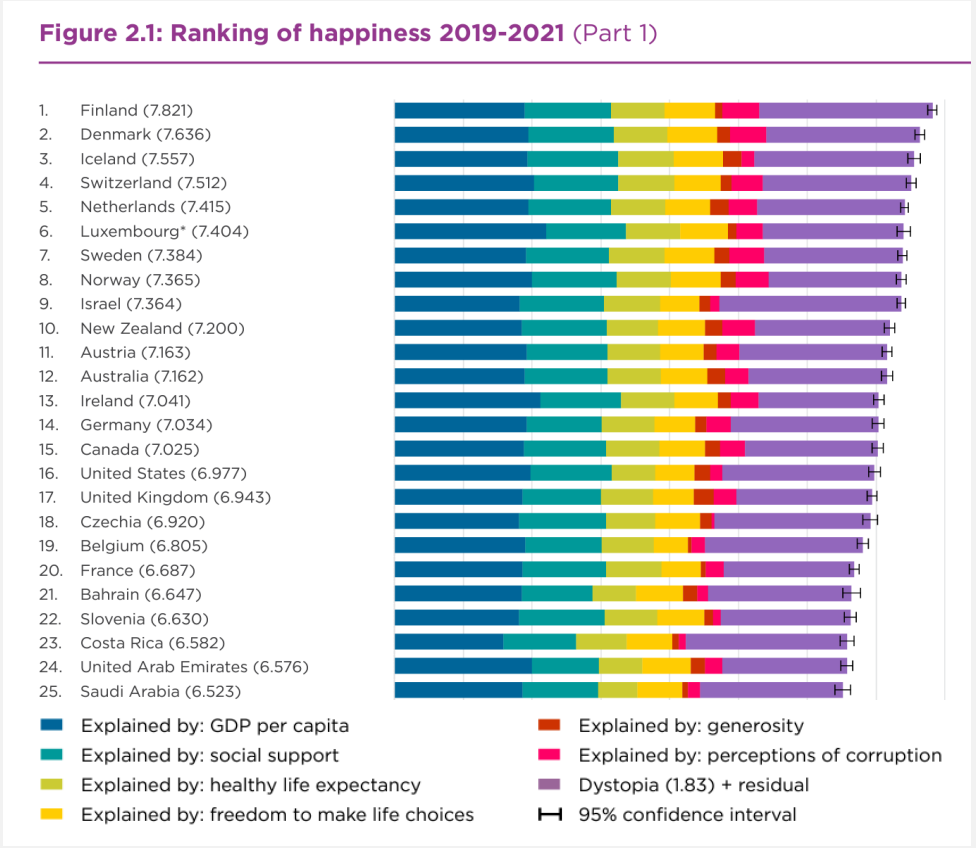
# The “science of well-being” focuses on identifying, measuring, and nurturing behaviors and activities that promote positivity.

- Well-being encompasses physical and emotional health
- It includes **personal** and **societal** well-being
- Assessments can be **subjective** and **objective**
- It is hard to define and difficult to measure


***“wellbeing is measurable, but it depends on what you mean by measurement and by wellbeing.”***
*- The Science of Wellbeing, February 2022*

# Personal well-being

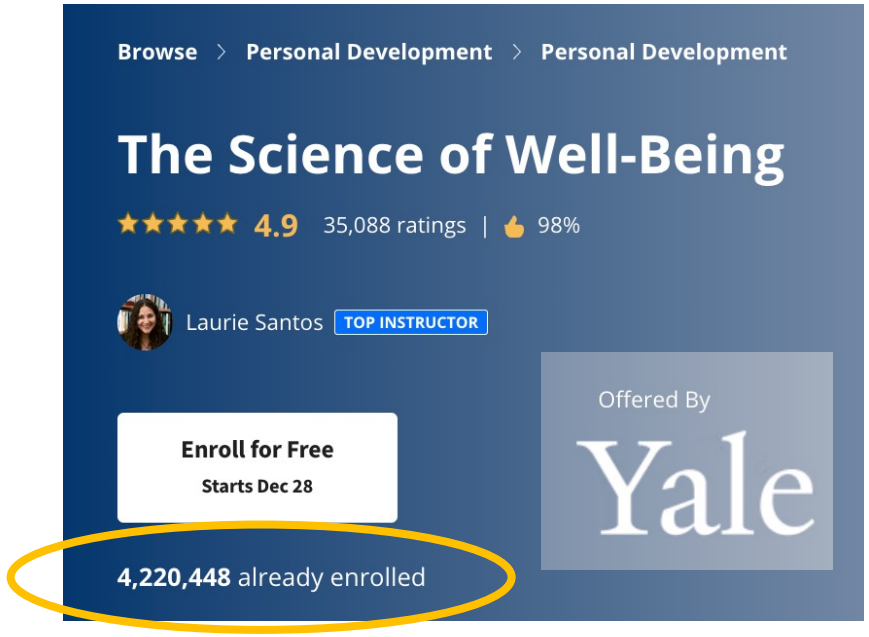
# Community well-being




Source: WHO World Happiness Report 2022

# Interest in the science of well-being is growing.

- According to the World Health Organization, more than **300 million** people of all ages suffer from depression.
- People, researchers, and policy-makers are increasingly interested in identifying drivers of well-being, measuring it, and achieving it.
- The Science of Well-Being is the most popular course on Coursera, with over **4.2 million** enrolled.



# Well-being in higher education

- University of Pennsylvania College of Liberal and Professional Studies: **Master of Applied Positive Psychology**
- Centenary University: **Master of Arts in Happiness Studies**
- Cornell University: **Wellness Counseling Certificate**
- Emory University: **Health and Wellness Coaching Certificate**


Image: https://villains.fandom.com/wiki/Audrey_II

# Smart Plants

# “Plantennas”

## Plants have natural sensing abilities.

- They can sense and react to, changes in environmental conditions.
- They send out visual signals when exposed to certain conditions or stimuli.
- Plants can even emit electrical signals that reach other plants.

# The “Wood-Wide Web”

## Can plants communicate with one another?

- Scientists are exploring the possibility of an interconnected, symbiotic “social network” under the forest floor.
- Plants and fungi are connected through a complex web of chemical interactions that are mutually beneficial.
- They exchange food and nutrients…and even communicate with one another on an information “super-highway.”

# Nature's Vacuum Cleaners

## Plants can even clean up messes.

- Some plants naturally remove pollutants and toxins from the soil.
- They can absorb, store, and even break down materials that are harmful to humans.
- Other plants can be genetically engineered to do so.

# An “Internet of Plants”?

## Humans, computers, and plants in an interconnected ecosystem.

- Threat detection networks
- Agricultural sensing and monitoring
- Environmental clean-up
- In the future…plants as “service dogs”?


Image https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.timesofisrael.com%2Fplant-world-to-get-israeli-internet-of-things-tech%2F&psig=AOvVaw1py_ebCAKYmrbdf_OHIzIb&ust=1668128610326000&source=images&cd=vfe&ved=0CBAQjhxqFwoTCODQjb-1ovsCFQAAAAAdAAAAABAN

# Opportunities in higher education

- Focused programs based on expertise
- Interdisciplinary programs:  Agriculture, Plant Sciences/Botany, Mycology, Computer Science, Engineering, Environmental Studies

NSF | cropps Center *for* Research on Progammable Plant Systems

UC RIVERSIDE | Phyto Myco Remediation

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