CODEBOOK

The following is a description of the Science Instagram Study codebook used for the basis of the Qualtrics online questionnaire created for data collection. Please become familiar with the nuances of this codebook, and review the examples provided.

You will complete the codebook via a Qualtrics survey for each Instagram post in the final sample excel spreadsheet: https://docs.google.com/spreadsheets/d/1P03h-YSe6Xxz3blN2dleqVculWDT0V7Yv4X32Mwj7c0/edit?usp=sharing.)

Instructions

- **Account drop-down list**: Choose the account name for the image you are coding. **Code all images from a given Instagram account before moving on to the next account.
- **Instagram Posting ID number**: Enter the ID number of the post you are coding. The ID number can be identified via the final sample spreadsheet (https://docs.google.com/spreadsheets/d/1P03h-YSe6Xxz3blN2dleqVculWDT0V7Yv4X32Mwj7c0/edit?usp=sharing). Use the "Account ID" followed by the image number, e.g. "001" for the first posting of the @lindsaywildlife feed.

<u>Variables</u>

- ○ **Size of visual** [Refers to the size/orientation of the Instagram photo or video]
    - ■ Square
    - ■ Portrait
    - ■ Landscape
- ○ **Color of visual** [Does the visual contain color, or has it been created or edited to black and white tones only?]
    - ■ Color
    - ■ Black and white
- ○ **Number of Likes** [Enter number of likes for photos or views for videos on the Instagram post]

- **Number of Comments** [Count number of comments on the Instagram post]
- **Obvious filter** [Does the Instagram visual have an obvious Instagram filter added to it?]
  - Yes
  - No
  - Not sure / Not applicable
- **Any added text ON the visual?** [Has any text been added to the visual, e.g. a picture, after creation of the original visual? This does not apply to, for example, text-based flyers that were originally created with the text. It applies to visuals such as pictures or video or scientific images where text has been added, for example through Snapchat, a mobile picture/video editing app, etc.]
  - Yes
  - No / Not applicable
- **Is the visual re-posted from a different Instagram account** [Has the visual been re-posted from another Instagram account, e.g. through the "repost" app?]
  - Yes
  - No
- **[IF YES to re-posted] The visual is re-posted from the Instagram account of…**
  - A museum visitor
  - A museum staff member
  - A science professional (e.g. scientist, museum curator, etc.)
  - Other
  - Can't tell / Not applicable
- **Type of visual** [Select the type of visual that most prominently describes the posting.]
  - Still photo
  - Still photo, Selfie
  - Still photo collage or slideshow / Montage (e.g. mix several visuals to form larger scene/picture; etc.)
  - Illustration / Drawing / Painting
  - Scientific animation or 3D model (can be video or still of an animation)
  - Cartoon, Meme, GIF, still from TV show/movie or illustrated animation
  - Infographic (includes data)
  - Video, Crafted (e.g. edited, with text, with voice-over, etc.)

- Video, Raw (e.g. with no editing beyond Instagram editing/trimming capabilities)
- Video, Timelapse
  - Example: https://www.instagram.com/p/BILVkjeg52q/?taken-by=lowellobservatory
- Video, "Boomerang"
- Promotional/Event flyer or graphic
- Other

○ **Predominant scale of visual** [What is the scale of the visual, in terms of what the human eye can see? May be a "mix" of the visual is a collage of multiple images. Not applicable in some cases, for example a text-based flyer or other visual that doesn't have a distinguishable "scale."]

- Microscale (smaller than the eye could see - like as seen through a microscope)
- Normal (what the human eye could see)
- Telescopic (larger or further than the human eye could see - like as seen through a telescope).
- Mix
- Can't determine or not applicable

○ **Distance to subject** [How far is the main subject in the photo? In an extreme close-up, only the main subject is viewable. An example of a full shot is a image where most of a person's body is viewable along with the setting the person is in.]

- Extreme close up (intimate detail)
- Close up (intimate)
- Full shot (medium distance)
- Landscape, outer space (far away)
- Mix
- Can't determine or not applicable

○ **Image quality (resolution / blurriness) or video quality (production value)**

- High [e.g. a high production value video, dslr-quality photograph, etc.]
- Medium [e.g. a good quality / sharp iphone image or video]
- Low [Is blurry, grainy, in low-light conditions, etc.]

○ **Hashtags**

- **Does the post caption include hashtags #?**

- **[If yes] Are (any of) the hashtags…**
  - Content related and science-related (example: #python for a picture of a snake, #biology) [Are related to the content of the visual AND are directly related to STEM fields (science, technology, engineering, math) or the natural world]
  - Content related but NOT science-related (example: #football, #candy) [Are related to the content of the visual but are not related to STEM fields (science, technology, engineering, math)]
  - Campaign/Museum Branded/Event related (#FranklinInstitute, #NightSkiesInTheObservatory for "Night Skies in the Observatory" events) [Are related to an ongoing social media campaign, a museum event hashtag, a hashtag used for a series of promotional content; often ties together images for the purpose of promotion.]
  - Inspirational/Comical (example: #museumsarecool, #weirdanimal) [A hashtag added not necessarily to help people find the post on Instagram, but to add humor, inspiration, or other context in an entertaining way.]
  - Unrelated [Seemingly unrelated to the content of the visual or any field of science]
- **Content: _____ is the primary or an important aspect of the posting (considering both visual and caption)**
  - A completed museum exhibit or part of the exhibit (e.g. an exhibit piece on display in the museum; includes planetariums / gardens) [The visual must display something that is currently on display or viewable to the public in a museum]
  - A science demonstration or hands-on science activity [The visual must display a scientific demonstration or hands-on science activity that is in progress when the visual was taken. For example, a chemistry experiment demonstration or students doing a science experiment, handling scientific specimens, or otherwise participating in a robust interactive science activity]
  - Other museum activity (e.g. fun, promotional, or educational activity or field trip, inside or outside of museum, for public or staff, in progress during the posting)
  - Behind the scenes of museum research, curation, collections work (e.g. visuals of scientific research in progress, how research is conducted, explanations of how specimens are collected, depiction of data collection, scientific equipment prep, etc.)

- - - Behind the scenes of museum activities NOT related to research, curation or collections (e.g. exhibit construction, maintenance, set-up, etc.)
    - A visual of identified* specimen(s) or natural object(s) (e.g. individual species, animal, plant, mineral, fossil, scientific illustration of an existing or extinct animal, cell under a microscope, planet, star, etc.) used as an example of its species or type for scientific study or display (including study or display of behavior). *Is scientifically identified, at least by common name*
    - A visual of unidentified* specimen(s) or natural object(s) (e.g. individual species, animal, plant, mineral, fossil, scientific illustration of an existing or extinct animal, cell under a microscope, planet, star, etc.) *Is not scientifically identified*
    - A visual of technology / scientific technology (e.g. machinery, scientific instrument, piece of technology, hardware, etc.)
  - **Science topic: The posting predominantly contains content related to the following area of science** [The connection to the main area of science in the visual may be loose but must be present and clearly distinguishable, e.g museum visitors viewing an exhibit containing animals or information about animals = zoology]**.**
    - Controversial science topic:
      - Climate change
      - Genetically modified foods (GMOs)
      - Vaccines
      - Stem cell research
    - Zoology / Wildlife conservation
    - Other Life science (biology, microbiology, medicine, etc.)
    - Paleontology / Archeology
    - Plant science
    - Entomology (insects)
    - Chemistry
    - Physics and/or Astronomy
    - Mathematics
    - Geoscience/Geology/Earth Science
    - Engineering (mechanical, electrical, aviation, etc.)
    - Agriculture / Land management
    - Field of science not distinguishable

- - ■ No science related content
    - ■ Other _____
  - ○ **[If posting is related to science] Does the posting depict science as a process?** (For example, the posting mentions or educates about the scientific method or process of discovery, shows science research in progress, discusses creation of scientific knowledge, tells the story of a discovery or specimen collection, etc. The posting goes beyond showing science as a product or (final) products of science. Should clearly depict science as an [unfinished] process that is ongoing, or show the often iterative process used to gather scientific data to create discoveries.
    - ■ Yes
    - ■ No
  - ○ **[If posting is related to science] Does the posting discuss, provide information about or otherwise relate to a new (e.g. within the last year) scientific discovery or research finding?** [Caption may mention a "new" discovery or scientific finding, "Scientists recently found…", or present a summary of a scientific paper published in the last year, etc. Gives information about recent scientific research data/findings/conclusions.]
    - ■ Yes
    - ■ No

  - ○ **Nature of visuals**:
    - ■ **Informational** (The posting is dominated by content that educates and/or spreads information, e.g. scientific information or facts.)
      - ● Informational, Not informational, Balanced/ambivalent
    - ■ **Entertainment-driven** (The posting is dominated by content that is entertaining in nature, e.g. humorous, awe-inspiring, emotionally stimulating, etc.)
      - ● Entertainment-driven, Not entertainment-driven, Balanced/ambivalent
    - ■ **Promotional** (The posting is dominated by content that promotes an organization or facility, promotes or recaps an event for promotional purposes, etc.)
    - ■ **Call to action.** (The posting is dominated by content that is mobilizing, e.g. a call to action)
      - ● Mobilizing, Not mobilizing, Balanced/ambivalent
      - ● What is the call to action? What does the image want you to do?

Examples:
- Promotional Only [primary objective is to promote an event, exhibit, museum activities, museum offerings, etc.]:
  - https://www.instagram.com/p/BKmE4DEA7lf/?taken-by=chemheritage
  - https://www.instagram.com/p/BCBpAcdy8hh/?taken-by=spacemuseummd
  - https://www.instagram.com/p/BCBR9XaS8n8/?taken-by=spacemuseummd
  - https://www.instagram.com/p/BJtQ4S3B1c2/?taken-by=smithsonian
- Informational Only [primary objective is to inform]
  - https://www.instagram.com/p/BKa3HEBA0Mb/?taken-by=chemheritage
  - https://www.instagram.com/p/BJ3OpNhhU5h/?taken-by=birdsofvermont
  - https://www.instagram.com/p/BKn9HkOAGjH/?taken-by=ummnh_museum
- Entertainment driven Only [primary objective is to entertain, not necessarily to promote or inform]:
  - https://www.instagram.com/p/BKTKefNARn2/?taken-by=chemheritage
  - https://www.instagram.com/p/BIsf7HNg1_M/?taken-by=brucemuseumseasidecenter
  - https://www.instagram.com/p/BI-kxUlAfbb/?taken-by=banderanaturalhistorymuseum
  - https://www.instagram.com/p/BKtsfm3BpVf/?taken-by=birdsofvermont
  - https://www.instagram.com/p/BJbPtncBpqm/?taken-by=smithsonian
- Mobilizing [primary objective is a call to action]:
  - https://www.instagram.com/p/BKlWdM5hrdt/?taken-by=birdsofvermont
- Promotional AND Entertainment driven [promotes but is also dominated by entertainment-driven content]: https://www.instagram.com/p/BAnrrMwS8uQ/?taken-by=spacemuseummd
  https://www.instagram.com/p/9Pg3Idy8uG/?taken-by=spacemuseummd
  https://www.instagram.com/p/BKBu00Tjvv8/?taken-by=ummnh_museum
  https://www.instagram.com/p/BHxojovhN21/?taken-by=smithsonian [could be considered "somewhat" informational, but is not dominated by science-related informational content]
- Mobilizing and Entertainment driven [includes a call to action but is also dominated by entertainment-driven content]: https://www.instagram.com/p/_Jo0CyS8s_/?taken-by=spacemuseummd

- Informational AND Entertainment driven:
  https://www.instagram.com/p/BKGQw6Whik8/?taken-by=birdsofvermont
  https://www.instagram.com/p/BJvwpkFhdy8/?taken-by=smithsonian
- Promotional AND informational [promotes but also informs with significant science-related information]: https://www.instagram.com/p/BIc0yvVhob6/?taken-by=smithsonian [could be considered "somewhat" entertainment-driven, but is not dominated by entertainment-driven content]
- **Depicts public engagement**? Does the posting depict *meaningful* public engagement or participation with science (e.g. non-scientists engaging with science or the natural world, speaking to a scientist or attending a science talk, participating in a science demonstration / experiment or doing a hands-on science activity)? [The post must clearly show members of the public or non-scientists engaging with robust science in an interactive way. For example, arts and crafts without a strong scientific component would not represent public engagement with science, but talking to a scientist or participating in citizen science would.]
  - Yes, Depicts public engagement with engagement
  - No, Does not depict public engagement with science
- **Does the posting combine science and art?** (e.g. represent something scientific in a highly artistic way, for example through illustration, photography, performing arts, fashion, music, etc.)?
  - Yes
  - No, but the posting depicts a combination of science and art, e.g. a photo of a science art exhibit or science art on display in a museum, etc.
  - No
- **Setting**
  - Outside
    - Nature setting
    - Other
  - Inside
    - Science laboratory
    - In/near museum exhibit space
    - Other
  - Both inside and outside (e.g. a collage of multiple images in different settings)
  - Can't Tell or not applicable (e.g. a flyer or text-based graphic)
- **Does the visual include a human element, including hands and people/faces?**
  - Yes/No
- **[If human element]:**
  - Hands only
  - One individual

- ○ Multiple people (2-5)
- ○ Crowd of people
- ○ Other
- **[If human element] Individual(s) in the posting are depicted as or can be identified as… (Can select multiple.)** [**Science professionals MUST be explicitly identified**, for example in the caption, as Scientists / Researchers / Museum curators or curatorial interns / Student researchers / Subject experts / Astronauts / Engineers, or a similar occupation. Museum staff/volunteers may be explicitly identified or may be depicted in the visual wearing an official museum shirt, interacting with museum audiences etc. Other types of people in the post may be identified through the visual or caption.]
  - ○ Science professionals
  - ○ Museum staff: Museum communicators / Educators / Staff or volunteers not identified as researchers
  - ○ Museum audiences OR adults who are not scientist(s)
  - ○ Children / Adolescents
  - ○ News media professionals
  - ○ Politicians / Policy makers / Public figures
  - ○ Celebrities / Performers
  - ○ Technician / IT personnel / Construction personnel
  - ○ None of the above distinguishable
- [If science professionals are in the post]: [Try to identify the gender and race of each science professional depicted in the post, as well as whether he/she/they are shown in a professional or private context.]
  - ○ **Gender**
    - ■ How many (clearly distinguishable) males?
    - ■ How many (clearly distinguishable) females?
  - ○ **Race**
  - ○ **Professional or privatized context?**
    - ■ Research context (conducting research, official museum curation/collections work or other professional scientific work)
    - ■ Other Professional context (giving a science talk, doing non-research museum work, demonstrating science, etc.)
    - ■ Private context (hobbies, personal matters, everyday tasks unrelated to work, etc.)
    - ■ Headshot or portrait with limited context
    - ■ Other / Not clearly distinguishable
- **Does the posting have a Negative or Positive tonality?**
  - ○ Negative (controversy, critique, conflict, bad news, failure, sad or scared faces, negative emoticons, etc.)
  - ○ Positive (excitement/awe, beauty, solution of problems, success, happy faces, smileys, good news, etc.)

- ○ Neutral (Neither expressly positive or negative)
- **Emotional appeal**: [Emotional should be very clear / explicit, for example as depicted on the faces of the people in the image, emotion directly mentioned in the caption ("we always feel nostalgic when…"), or otherwise very clearly expressed in the visual (e.g. a sick animal with a message about environmental issues, etc.)
  - ○ Wonder/Awe/Excitement
  - ○ Humor/Funny
  - ○ Anger
  - ○ Shock/Disgust
  - ○ Anxiety/Fear
  - ○ Sadness
  - ○ Nostalgia
  - ○ No emotional appeal
  - ○ Other
- **Does the caption present substantive scientific information, science facts, or scientifically educational material?** (Should be more than just a one-line identification of element(s) in the photo, e.g. educates or informs scientifically beyond cursory information needed to understand what is in the visual.)