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**This form effective September 9, 2022**

**Use this form to** [**amend an approved protocol**](https://campusirb.duke.edu/node/55)**, regardless of type of review (exempt, expedited, or full) conducted at the time of approval.**

Please use the[**Additional Study Personnel**](https://campusirb.duke.edu/node/22) form if you are proposing to add new members to the Duke research team. Removing staff can be done via [**email**](mailto:campusirb@duke.edu).

**If you want to add researchers from another institution,** [**contact an IRB staff member**](https://campusirb.duke.edu/node/23)**.**

This document should be submitted by the researcher, as an e-mail attachment, to IRB staff at [**campusirb@duke.edu**](mailto:campusirb@duke.edu). Please append this document to an updated version of the protocol with proposed revisions annotated in Track Changes. Page 2 of this form includes more instructions.

|  |  |
| --- | --- |
| Project Title: | **Data Science Assessment** |
| IRB Protocol Number: | **2022-0399** |
| Researcher(s): | **Mine Çetinkaya-Rundel, Maria Tackett, Evan Dragich** |
| Submission Date: | **02 March 2022** |

**Please check all categories in which changes are proposed:**

Research Team Personnel\*

Participant Population

Measures/Instruments

Recruitment

Confidentiality

Risks of Harm

Compensation

Informed Consent

Deception and/or Debriefing

Funding Source

Other:

**Please describe the proposed changes in the text box below. If the proposed changes include the disclosure of a financial conflict of interest, please explain:**

**Undergraduate students, all current TAs for an intro data science class, would be allowed** to log an extra hour on their TA timesheets in the biweekly period they complete this interview. The timesheets are self-reported by students every two week period, and encompass the grading, office hours, and lab session leading duties which sum 10-12 hours per week on average, according to the official TA job offer letter, but sometimes less, according to my personal experience.

Their identity in participation would still be anonymous to anyone at Duke other than me (Evan Dragich), as the hours reported on these timesheets frequently vary and the day corresponding to the hour they log for this activity would not provide their identity, as students may complete grading duties at any time for however long it takes them. They would be voluntarily participating in activities related to materials which have intended classroom purposes for the course they are teaching.

**Instructions:**

At the end of this form, include the full version of the previously approved protocol with the proposed changes incorporated. Please make these changes using Word’s **Track Changes** function to distinguish them from the parts that have already been approved.

Using cloud-based tools (such as Google docs) can present some formatting incompatibilities that may make it difficult to review the protocol.

Do not submit your amendment as a PDF. Submit your amendment as a single Word file to campusirb@duke.edu or to the IRB Staff Specialist working with you on your protocol.

**Please note:** Submitting the amendment without Track Changes, in multiple files, as a PDF, or with significant formatting changes will delay the pre-review of your application and may necessitate a resubmission of the application.

**For IRB Office Use Only:**

Amendment #:

Reviewed by:  IRB Designee  IRB Member

Reviewed as:  Exempt  Expedited  Full

Approved by IRB Member on .

**OR** Approved by IRB Designee on .

Research no longer qualifies for exemption. A Request for Protocol Approval must be submitted. (Only if the initial protocol submission was approved as exempt.)

****

**This form effective July 28, 2021**

Fill out this application and email it to campusirb@duke.edu or the IRB staff person you are working with. **Combine this form and any appendices into a single Word file.** Submitting the protocol in multiple files or as a PDF will delay the pre-review of your application.

**If you are collaborating with investigators at another institution, contact an IRB staff member before completing this form.**

**NOTE**: This exemption form has been modified significantly to match the form that will be on iRIS. It resembles a non-exemption form to better capture the information about your study. Additionally, there are many questions and sections that may not be relevant to your study. These questions are included to better help a reviewer determine whether an exemption can be granted.

Do not use this form if:

* you are an undergraduate; instead, go to our forms page for undergraduate research, **or**
* your research activities are limited to analysis of data collected by someone else; instead, go to the [Request for Protocol Approval for the Analysis of Existing Data](https://campusirb.duke.edu/node/22) form.

Protocols that meet the exemption eligibility criteria must still be reviewed.

**Restrictions on the Use of Exemptions:**

Exemptions cannot be secured for research that includes:

1. Pregnant women when they are the targeted subject population
2. Students participating in the Psychology & Neuroscience Subject Pool
3. Students if the researcher is their instructor
4. Employees if the researcher is their supervisor
5. Direct interaction with children
6. Prisoners
7. Use of deception
8. Risks that must be managed

Exemptions **cannot** be secured for studies that involve riskthat must be managed, either through confidentiality procedures or through services such as referrals.

|  |
| --- |
| Section 1: General Information |

**Protocol Title**: Data Science Assessment

|  |
| --- |
| Section 2: Key Study Personnel |

**Principal Investigator**

Identify one Principal Investigator (PI) on this project and sign below.

* This person is responsible for the overall conduct of the research. For all students, fellows, and post-docs, this is your faculty advisor
* If you have more than one PI, only choose one
* By signing, the PI certifies to the following:
  + I have read and approved the protocol
  + I assume responsibility for ensuring that my advisees are aware of the responsibilities as researchers
  + I ensure that the IRB will be immediately notified in the event of [unanticipated risks to participants, protocol deviations, or findings during the study that would affect the risks](https://campusirb.duke.edu/node/101) of participation.

|  |  |
| --- | --- |
| **Name**: **Mine Çetinkaya-Rundel** | **Department or School**:  Statistical Science |
| **E-mail Address**: mc301@duke.edu  **NetID**: mc301 | **Phone Number**: (919) 684-4210 |
| **Faculty Advisor**  **Faculty Researcher**  **Staff**  **Other**:Click or tap here to enter text. | |
| **Signature**: A picture containing indoor  Description automatically generated | **Date**: 2/28/2022 |

**Duke Research Team**

Please list the other Duke members of the research team AND indicate their role on the project. Do not list non-Duke researchers. These team members can be added in a later section.

Feel free to copy and paste, or delete the blocks as necessary.

All signatories agree to the following:

* I will not begin the research until written approval is secured from the IRB. Note: Approval will not be provided unless [certification to conduct research with human subjects](https://campusirb.duke.edu/node/57) for each researcher named on the protocol is current.
* I will conduct this study as described in the approved protocol.
* If any changes are anticipated, I will submit a [Request to Amend an Approved Protocol](https://campusirb.duke.edu/node/22), and I will not implement the changes until I receive approval from the IRB.
* I will contact the IRB staff promptly if any of the following events occur: [unanticipated risks of harm to participants, protocol deviations, and findings during the study that would affect the risks](https://campusirb.duke.edu/node/101) of participation.

|  |  |
| --- | --- |
| **Name**: **Maria Tackett** | **Department or School**:  Statistical Science |
| **E-mail Address**: maria.tackett@duke.edu  **NetID**: mt324 | **Phone Number**: (919) 684-4210 |
| **Faculty**  **Undergraduate**  **Graduate** **student**  **Postdoc**  **Research associate**  **Other**:Click or tap here to enter text. | |
| Shape  Description automatically generated with medium confidence  **Signature**: | **Date**: 2/28/2022 |

|  |  |
| --- | --- |
| **Name**: **Evan Dragich** | **Department or School**:  Statistical Science |
| **E-mail Address**: evan.dragich@duke.edu  **NetID**: emd48 | **Phone Number**: 425-577-3304 |
| **Faculty**  **Undergraduate**  **Graduate** **student**  **Postdoc**  **Research associate**  **Other**:Click or tap here to enter text. | |
| **Signature**:A picture containing text  Description automatically generated | **Date**: 2/28/2022 |

|  |  |
| --- | --- |
| **Name**:Click or tap here to enter text. | **Department or School**:  Click or tap here to enter text. |
| **E-mail Address**: Click or tap here to enter text.  **NetID**: Click or tap here to enter text. | **Phone Number**: Click or tap here to enter text. |
| **Faculty**  **Undergraduate**  **Graduate** **student**  **Postdoc**  **Research associate**  **Other**:Click or tap here to enter text. | |
| **Signature**: | **Date**: Click or tap to enter a date. |

**If there are more members of the research team, copy and paste the researcher information and signature block as needed.**

**Other Study Contacts**

If there are additional personnel (e.g. a departmental staff member) who assist in protocol preparation and record keeping, and would like to be copied on correspondence from the IRB, please add them here.

|  |
| --- |
| **Name**:Click or tap here to enter text. |
| **E-mail Address**: Click or tap here to enter text.  **NetID**: Click or tap here to enter text. |
| **Type of Correspondence:**  Approval and Reminder Notices  All correspondence related to the submission, including feedback |

**IRB USE ONLY**

This section is to be completed by IRB staff or IRB members only.

|  |  |
| --- | --- |
| **APPROVED as X** **Exempt**  **Expedited or**  **Full** | |
|  | **04/21/2022** |
| X IRB Designee or  IRB Member | Date |

|  |
| --- |
| Exemption Category |

**Please select the exemption category that applies to your research.**

**Categories of Eligible Research Activity:**

Please select the exemption category that applies to your protocol. If the protocol includes any research activity with human subjects not specifically exempted under one or more of the exemption criteria, IRB review is required and the Request for Protocol Approval form must be used.

**Category 1:** Research, conducted in established or commonly accepted educational settings, that specifically involves normal educational practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction. This includes most research on regular and special education instructional strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

**Category 2:** Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least: (i) the information obtained is recorded by the investigator in such a manner that the identity of participants cannot readily be ascertained, directly or through identifiers linked to the subjects; or (ii) any disclosure of the responses outside the research would not reasonably place the subjects at risk.

**Category 3:** Research involving benign behavioral manipulations (brief in duration, harmless, painless, not physically invasive, offensive or embarrassing; and not likely to have a significant adverse lasting impact on the subjects) in conjunction with the collection of information from an adult subject through verbal or written responses (including data entry) or audiovisual recording if the subject prospectively agrees to the intervention and information collection and at least (i) the information obtained is recorded by the investigator in such a manner that the identity of human subjects cannot readily be ascertained, directly or through identifiers linked to subjects; or (ii) any disclosure of the responses outside the research would not reasonably place subjects at risk.

**Category 4:** Secondary research for which consent is not required, including the secondary analysis of identifiable private information or identifiable biospecimens, if at least (i) the identifiable private information or identifiable biospecimens are publicly available; or (ii) information, which may include information about biospecimens, is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained directly or through identifiers linked to the subjects, the investigator does not contact the subjects, and the investigator will not re-identify subjects. ***The secondary analysis of pre-existing data requires the use of a separate form. Please go to*** [***Request for Protocol Approval for the Analysis of Existing Data***](https://campusirb.duke.edu/node/22) ***form.***

**Category 5:** Research and demonstration projects which are conducted by or subject to the approval of Department or Agency heads, and which are designed to study, evaluate, or otherwise examine methods and procedures of public benefit or service programs.

**Category 6:** Taste and food quality evaluation and consumer acceptance studies, if wholesome foods without additives are consumed, or if a food is consumed that contains a food ingredient, agricultural chemical, or environmental contaminant at or below the level and for a use found to be safe by the FDA, EPA or USDA.

**The Campus IRB Program will not screen for exemption research for which broad consent or limited IRB review is required.**

|  |
| --- |
| Section 3: Departmental & Institutional Affiliations |

1. **Identify the department, institute, or center that you consider the home of the study.**

|  |
| --- |
| Statistical Science |

1. **Will you be collaborating with researcher(s) at other institution(s)?**

Please contact IRB staff at [campusirb@duke.edu](mailto:campusirb@duke.edu) to confirm that you are engaged in inter-institutional collaborations.

Yes  No

**If YES, please specify the following for each collaborator:**

|  |  |
| --- | --- |
| **Collaborator’s Name**: | Andy Zieffler |
| **Role in Research**: | Co-Principal Investigator |
| **Research Activities/ Responsibilities:** | Conceptualizing, developing and evaluating items for the data science assessment |
| **Organization/Institution**: | University of Minnesota |
| **Has your collaborator reached out to their organization/institution about IRB or ethics review?** | |
| Yes\*  No  Collaborator’s organization/institution does not have an IRB or ethics review board | |
| **\*If you indicated that your collaborator has reached out to their organization/institution’s IRB or ethics review board, please describe their determination or the status of the request:**  AZ and CL submitted a Human Research Form via UMN’s IRB protocol 503 on 02/24/2021. The status of this proposal is still pending review. Their proposed research activities were identical to the present description, except their participants were going to be undergraduate students, rather than professors as in our case. | |

|  |  |
| --- | --- |
| **Collaborator’s Name**: | Chelsea Legacy |
| **Role in Research**: | Collaborator / Graduate Student Assistant |
| **Research Activities/ Responsibilities:** | Conceptualizing, developing and evaluating items for the data science assessment |
| **Organization/Institution**: | University of Minnesota |
| **Has your collaborator reached out to their organization/institution about IRB or ethics review?** | |
| Yes\*  No  Collaborator’s organization/institution does not have an IRB or ethics review board | |
| **\*If you indicated that your collaborator has reached out to their organization/institution’s IRB or ethics review board, please describe their determination or the status of the request:**  Same as AZ above. | |

|  |  |
| --- | --- |
| **Collaborator’s Name**: | Mine Dogucu |
| **Role in Research**: | Co-Principal Investigator |
| **Research Activities/ Responsibilities:** | Conceptualizing, developing and evaluating items for the data science assessment |
| **Organization/Institution**: | University of California, Irvine |
| **Has your collaborator reached out to their organization/institution about IRB or ethics review?** | |
| Yes\*  No  Collaborator’s organization/institution does not have an IRB or ethics review board | |
| **\*If you indicated that your collaborator has reached out to their organization/institution’s IRB or ethics review board, please describe their determination or the status of the request:**  Click or tap here to enter text. | |

|  |  |
| --- | --- |
| **Collaborator’s Name**: | Matt Beckman |
| **Role in Research**: | Co-Principal Investigator |
| **Research Activities/ Responsibilities:** | Conceptualizing, developing and evaluating items for the data science assessment |
| **Organization/Institution**: | Pennsylvania State University |
| **Has your collaborator reached out to their organization/institution about IRB or ethics review?** | |
| Yes\*  No  Collaborator’s organization/institution does not have an IRB or ethics review board | |
| **\*If you indicated that your collaborator has reached out to their organization/institution’s IRB or ethics review board, please describe their determination or the status of the request:**  Click or tap here to enter text. | |

1. **If your collaborator is a foreign entity, have you already obtained approval from the** [**Duke University Office of Export Controls**](https://export.duke.edu/)**?**

Yes  No  N/A

If NO, IRB staff will forward this protocol to the Export Controls office.

|  |
| --- |
| Section 4: Funding Sources and Conflict of Interest |

1. **Please identify your funding source(s)**:

|  |
| --- |
| None. |

1. **Are any of the above funding source(s) a U.S. Federal Agency or Department?**

Yes  No

If YES, please include the grant application with this protocol request (the budget information can be removed).

1. **Are any of the above funding source(s) a component of the Department of Defense?**

Yes  No

If YES, please complete and include the DOD attachments (found at <https://campusirb.duke.edu/forms>) with this protocol request.

1. **Do you have an outside interest (financial or otherwise) that is in any way related to this study?**

Yes  No

**If YES, please explain.**

|  |
| --- |
| Click or tap here to enter text. |

|  |
| --- |
| Section 5: Research Question |

1. **What is your research question or the purpose of your research?**

|  |
| --- |
| The purpose of the research is to design an instrument that would assess students’ statistical reasoning after any first course in statistics at the undergraduate level. At this stage, we’re looking to gather feedback from colleagues on the assessment we’ve designed, particularly with regard to coverage of topics and wording of questions.  Having completed the faculty portion of the interviews, we will now progress to gather similar feedback from undergraduate students. |

1. **Provide background information about the research that will help the reviewer understand your project.** Avoid discipline-specific jargon.

|  |  |
| --- | --- |
| We aim to conduct interviews with professors in data science-related fields (statistics, computer science, etc.) to gain further insight on the working prototype assessment. Specifically, we will ask them the following two questions:   1. What topics must be in an introductory data science course? 2. What topics are nice to have in an introductory data science course?   Then, we’ll ask them to reflect on each of the questions on the current prototype of the assessment, commenting on clarity of wording, appropriateness of topic, etc.  We’ll wrap up by asking them bout the strengths of the prototype assessment, what’s missing, and what doesn’t belong in it.  The information we collect during these interviews will only be used to revise the assessment and will not be redistributed as part of the research.  After completing the faculty portion, we now aim to conduct interviews with undergraduate students who have taken STA199 prior to the Fall 2022 semester to gain further insight on the working prototype assessment.  We’ll ask them to reflect on each of the questions on the current prototype of the assessment to the best of their ability, walking through their thought process. We will also ask them to provide feedback on the clarity of wording, appropriateness of topic, etc.  We’ll wrap up by asking them if there are any topics they feel that they learned in introductory data science courses that are missing, or if any currently included topics shouldn’t belong. | Click or tap here to enter text. |

|  |
| --- |
| Section 6: Participant Population |

1. **Will any of your research activities be physically conducted outside of the U.S.?**

Yes – All of them  Yes – Some of them  No

**If YES, please identify the countr(ies) where you will carry out your research.** If you have more than one study or participant populations, elaborate on the specific studies or participant populations that will be located outside of the U.S.

|  |
| --- |
| Click or tap here to enter text. |

**IF YES, have you already obtained approval from the Duke University Office of Export Controls?**

☐ Yes ☐ No

If NO, IRB staff will forward this protocol to the Export Controls office.

1. **Will any of your research activities be conducted online, by telephone, or by other electronic communication?**

Yes – All of them  Yes – Some of them  No

**If YES, will any of your participants be located outside of the U.S. while participating in your research?**

Yes - All of them  Yes – Some of them  No

**If YES, please identify the countr(ies) where you will carry out your research.** If you have more than one study or participant population, elaborate on the specific studies or participant populations that will be located outside of the U.S.

|  |
| --- |
| Click or tap here to enter text. |

1. **If the research is not taking place in the U.S., does it need community-level, institutional-level, or national level approval in the countr(ies) where it will take place? Please elaborate.**

|  |
| --- |
| Click or tap here to enter text. |

***\*\*****Include documentation of the appropriate reviews in the Appendices\*\**

1. **If the research will take place in a U.S. elementary or secondary school, please identify the school(s) and/or school district(s):**

|  |
| --- |
| Click or tap here to enter text. |

1. **If you are specifically recruiting participants that involve any of the groups below, please select them:**

Children\*, as defined by the research site (e.g. under 18 years old in NC)

Cognitively impaired persons, for example, people with dementia

Department of Defense, active duty military, or civilian personnel

Native American/American Indian

Prisoners

Refugees

Stigmatized populations

Undocumented immigrants

Victims of abuse

Other vulnerable populations (please specify: Click or tap here to enter text.)

\*See our [**Research with Children**](https://campusirb.duke.edu/node/63) policy. Please see questions 6.9-6.10.

1. **Describe each proposed participant population.** Include the expected number of participants in each population. If your research will include children, please include their age ranges and the age of majority of the population where your participants reside.

|  |
| --- |
| The participants will be faculty who teach data science. We will aim to recruit from at least 4 types of institutions: two-year college, liberal arts college, large state school, private R1 school. Out goal is to recruit no fewer than 5 and no more than 10 participants.  The participants will be no more than 3 Duke undergraduate students, who have successfully completed the course STA199 (Introduction to Data Science) prior to the Fall 2022 semester. We will begin recruiting students from the STA199 undergraduate TA population, but will also reach out to all former STA199 students. |

1. **Is the primary language of your participants English?**

Yes  No

**If NO, please indicate their primary language and your proficiency in speaking, reading, and writing it.**

|  |
| --- |
| Click or tap here to enter text. |

1. **If you are not proficient in the language your participants speak, will you need an interpreter?**

Yes  No  N/A

**If YES, how will you obtain the services of an interpreter?**

|  |
| --- |
| Click or tap here to enter text. |

Please answer the following questions if your research activities will involve children/minors.

1. **Describe the scope of the interaction your research team will have with the children/minors.**

|  |
| --- |
| None. |

1. **Identify which members of your research team will interact with the children/minors.**

*Note: Duke requires individuals interacting with minors to complete training:* [*https://forms.hr.duke.edu/minors/training/*](https://forms.hr.duke.edu/minors/training/)*).*

|  |
| --- |
| Click or tap here to enter text. |

|  |
| --- |
| Section 7: Recruitment |

1. **Describe the procedures for recruiting each potential participant population.**

|  |  |
| --- | --- |
| Dr. Mine Çetinkaya-Rundel will recruit fellow faculty members via word of mouth and direct request; Evan Dragich will assist in recruitment via direct contact. The text of the recruitment email is included in the Appendix.  Dr. Mine Çetinkaya-Rundel will assist Evan Dragich administratively with participant recruitment, while Evan Dragich will reach out directly and continue as the sole researcher to interact with potential participants. The text of the recruitment email is included in the Appendix. | Click or tap here to enter text. |

1. **Check all the recruitment methods that apply:**

Introductory letter or email messages

Flyers/posters

Newspaper ads

Text for social networking sites or other online recruitment

Scripts for personal contact

Other (please specify: Click or tap here to enter text.)

*\*\*Include all recruitment materials in the Appendices\*\**

1. **Are there any inclusion or exclusion criteria that participants will need to know about before enrolling?**

Yes  No

**If YES, please describe the inclusion or exclusion criteria.**

|  |
| --- |
| The only inclusion criterion is that the participant has taught, or is slated to teach in the near future, an introductory data science course. This will be stated as part of the recruitment email. Additionally, we will only be reaching out to contacts who we know fit this criterion.  The only inclusion criterion is that the participant has taken STA199 at Duke prior to the Fall 2022 semester. This will be stated as part of the recruitment email. |

1. **Will you screen participants before they enroll in the study?**

Yes  No

**If YES, explain why you need to screen participants, how you will screen them, and what will happen to any information collected during the screening (both for those who are eligible and who are not eligible).**

|  |
| --- |
| Click or tap here to enter text. |

|  |
| --- |
| Section 8: Description of Activities |

1. **Describe the study activities and how long each activity will take.**

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| --- |
| The interview will be scheduled for 90 minutes.   * 5 minutes: Introductions, recap of purpose of interview * 10 minutes: Interviewee will answer the following questions: * What topics must be in an introductory data science course? * What topics are nice to have in an introductory data science course? * 65 minutes (with a 5 minute break in the middle): Reflect on each of the 40 questions on the data science assessment, particularly on the clarity of wording, appropriateness of topic, etc. * 10 minutes: Interviewee will be asked to reflect on the strengths of the prototype assessment, what’s missing, and what doesn’t belong in it, and wrap up.   The undergraduate version of the interview will be scheduled for 60 minutes.   * 5 minutes: Introductions, recap of purpose of interview * 50 minutes (with a 5 minute break in the middle): Reflect on as many of the 40 questions on the data science assessment as time allows, first by working out their answers, and then reflecting on the clarity of wording, appropriateness of topic, etc. Students’ responses will not be graded or scored; thus, the only data collected by the research team will be subjective, non-technical feedback and the undergraduate team member will never be exposed to students’ performance or grades. * 5 minutes: Interviewee will be asked to reflect on their overall opinions of the prototype assessment, the length and pacing, what’s missing, and what doesn’t belong in it, and wrap up. |

*\*\*Include all study documents (including instruments, measures, stimuli, and survey interview and focus group questions) in the Appendices\*\**

*Description of Activities | Recordings and Photographs*

1. **Will participants be audio-recorded or video-recorded, either individually or in groups?** Check all that apply. Audio- and video-recordings of focus groups are allowed only if all participants in the group have given their explicit permission to be recorded. *Note: Audio-recordings are considered identifiable.*

See our [Guide for Releases for Images and Recordings](https://campusirb.duke.edu/node/78)

Yes – Audio-recordings  Yes – Video recordings  No

# **If NO, skip to question 8.3**. Click to the left of “If NO” to temporarily collapse the questions about audio and video recordings.

**8.2.1 Elaborate on the recordings and what will be recorded:**

|  |
| --- |
| The entire conversation, including interviewee’s answers will be recorded. This will be done on Zoom. |

**8.2.2 If recordings will be transcribed, who will carry out the transcription?** Microsoft Stream and Zoom have automatic transcription capabilities that are available under a Duke license. Third party transcription services may require review by oversight offices apart from the IRB (e.g., IT Security, Privacy).

|  |
| --- |
| We will use Zoom for transcription and Evan Dragich will spot check for transcription errors, particularly around technical terms. The recordings will be saved on Duke Box during transcription and they will be deleted no more than two weeks after the transcription is completed. The transcripts will also be stored on Duke Box. |

*Note: Campus IRB staff will inform you if the collection and transcription of your recordings will need to undergo review by additional institutional oversight offices, including IT Security and Privacy.*

**8.2.3 What will the recordings or transcriptions be used for?** Check all that apply:

For my *current* project’s research, as part of my records

For my *future* research use, as data for **my** future projects

For *general research* use, including sharing with other researchers beyond my current project

For *public use*, including sharing in presentations, publications, and for educational purposes

Other (please specify: Click or tap here to enter text.)

**8.2.4 Elaborate on the above.** If the recordings or transcriptions will be shared publicly or saved for any future use after this project, explain how they will be used, where they will be stored, and how you will obtain permission from participants for their future use.

|  |
| --- |
| Recordings will not be available to anyone except for Mine Çetinkaya-Rundel and Evan Dragich, who will be conducting the interviews. The deidentified transcriptions will be shared with the research team and nobody else.  For the undergraduate student interviews, only Evan Dragich, who will be conducting the interviews, will have access to the recordings. |

*Note: See* [*our website*](https://campusirb.duke.edu/node/78) *for more information about obtaining releases for recordings.*

*Note: The Duke IT Security Office (ITSO) has determined that* [*the use of non-Duke cloud services, like Google Drive, Apple iCloud, and DropBox are not approved*](https://security.duke.edu/policies/duke-services-and-data-classification) *for official Duke use.*

1. **Will participants be photographed?** *Note: Photographs of participants’ faces are considered identifiable.*

Yes  No

# If NO, skip to Question 8.4. (Click to the left of “If NO” to temporarily collapse questions about photographs.

**8.3.1 Elaborate on the photographs and who/what will be included:**

|  |
| --- |
| Click or tap here to enter text. |

**8.3.2 What will the photographs be used for?** Check all that apply:

For my *current* project’s research, as part of my records and for transcription/coding purposes

For my *future* research use, as data for **my** future projects

For *general research* use, including sharing with other researchers beyond my current project

For *public use*, including sharing in presentations, publications, and for educational purposes

Other (please specify: Click or tap here to enter text.)

**8.3.3 Elaborate on the above.** If the photographs will be shared publicly or saved for any future use after this project, explain how they will be used and where they will be stored. Explain why the images of participants are necessary to share publicly or save for the future.

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| Click or tap here to enter text. |

**8.3.4 Where will the images be displayed, presented, or distributed outside of the research team?**

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| --- |
| Click or tap here to enter text. |

**8.3.5 How will you obtain photographs of participants?** For example, what device will you use to capture their image? Will you ask participants to send you a photograph (and how)?

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| --- |
| Click or tap here to enter text. |

**8.3.6 How will the releases for the use of the images be secured?**

* Generally, releases need to be documented with a signed form or recorded statement
* The informed consent process can include the release(s)

|  |
| --- |
| Click or tap here to enter text. |

*Note: See* [*our website*](https://campusirb.duke.edu/node/78) *for more information about obtaining releases for images.*

*Description of Activities | Deception and Debriefing*

1. **Does the research include deception?**

### (Click the arrow to the left of “(Click” to read more about deception)

There are a number of ways to use deception in research, for example:

* Telling participants something you know is not true, such as providing false feedback about performance
* Using a confederate who pretends to be another participant but is actually a member of the research team

You are not deceiving participants if you do not tell them your research hypothesis. Researchers are under no obligation to tell participants their research hypothesis if doing so would undermine the scientific validity of the research. However, participants have the right, according to the ethical principle of respect for persons, to decide whether to take part in research based on information provided to them during the consent process. If the participants will be deceived, the ethical and regulatory requirement to fully inform participants **must be waived** by the IRB.

**The following criteria must be met in order to use deception in your research:**

1. The risk must be no more than minimal.

* “Minimal risk means that the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.”

1. The rights and welfare of the subjects will not be adversely affected. Examples of deceptions that do not adversely affect rights and welfare of participants include:

* The study will involve subliminal priming, but the content of the primes would not be offensive or disturbing if known to the participants.
* Participants will be video-recorded without their knowledge, but will be given the opportunity to request that their recordings not be retained.
* Participants will be reassured after the study that the feedback they received on their performance was false.

1. The research could not practicably be carried out without the waiver.

* This does not mean that it would be inconvenient to conduct the study without the waiver. It means that unless participants are deceived, you could not collect valid data.

1. When appropriate, participants will be provided with pertinent information after participation.

* This information is provided through debriefing. A good debriefing provides enough information about the study’s purpose and methodology to make clear why deception was necessary.

5. If participants were recorded without their knowledge, they must be given the option to have the recording erased.

Yes  No

### If NO, SKIP to QUESTION 8.5. (Click the arrow to the left of “If NO” to temporarily collapse the questions about deception.)

**8.4.1 Describe the deception.**

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| Click or tap here to enter text. |

**8.4.2 Using the definition of minimal risk provided above, explain why using deception would not cause more than minimal risk to participants.**

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| --- |
| Click or tap here to enter text. |

**8.4.3 Explain why using deception would not adversely affect the rights and welfare of participants.**

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| --- |
| Click or tap here to enter text. |

**8.4.4 Explain why deception is necessary to accomplish the goals of the research.**

|  |
| --- |
| Click or tap here to enter text. |

1. **If participants will be debriefed, explain when they will be debriefed and include the debriefing statement in the Appendices.** *Note: Research involving participants from the* Psychology & Neuroscience SONA Subject Pool *requires an educational debriefing.*

|  |
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| Click or tap here to enter text. |

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| Section 9: Additional Data |

1. **Will you be provided with already-existing data about your participants or other individuals that you will analyze as part of this project?** Existing data may include individual records (e.g., academic, medical, financial), data sets, interview notes, biospecimens, online profiles and posts (e.g., social media), and audio- or video-recordings.

Yes  No

### If NO, SKIP to SECTION 10. (Click the arrow to the left of “If NO” to temporarily collapse the questions about additional data.)

1. **Please describe the data and the data providers.** This includes the variables, estimated number of records, and identifying the organizations and/or individual(s) providing the data.

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| --- |
| Click or tap here to enter text. |

1. **Do any of above data include (check all that apply):**

Medical records provided by Duke Health (clinic, department, or facility)

Medical records provided by a non-Duke entity

Academic records

Data provided by a component of the DOD (Department of Defense)

None of the Above

1. **Do the data contain any identifiable information?**

*For more information on what types of data may be considered identifiable, please see the descriptions in Section 13: Confidentiality.*

Yes  No

**If YES, will the data be de-identified (either before or after you receive them)?**

Yes  No

**If YES, please describe the de-identification process.** If Duke is responsible for de-identifying the data, who will do that, when will this occur, and where will it occur?

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| --- |
| Click or tap here to enter text. |

1. **Would an inadvertent release of identifiable data place individuals at risk of harm?**

Yes  No

**Please elaborate.** For example,explain why you are confident they are no risks, or if risks are possible, describe the risks and how they may be mitigated.

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| --- |
| Click or tap here to enter text. |

1. **Are the data publicly available?**

Yes  No

Note: Data are considered public if they are readily available for research purposes without making a formal request. That is, anybody can download the data with a simple click from an open, public-facing website.

1. **Does your data provider require you to enter into an agreement, such as a data use agreement (DUA), or do they specify guidelines or restrictions that describe how to transfer, protect, or store the data?**

Yes  No

If NO, include documentation in the Appendices that explain or describe the mechanism that allow for the transfer of the data to Duke. Documentation may include copies of confirmation emails from the data provider or screenshots of a completed online data request application.

If YES, you must complete Section 14: ITSO Questions, and upload the agreements in the Appendices.

* Agreements must be signed by the data provider and by a Duke institutional official
* The IRB will facilitate securing the institutional signature
* Researchers may not sign on behalf of the university

1. **Will the data require destruction?**

Yes  No

**If YES, by what date will the data be destroyed?** Click or tap here to enter text.

1. **Does your research require that you re-consent participants for the secondary use of their data?**

Yes  No

**If YES, please describe the process for re-consenting participants.**

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| Click or tap here to enter text. |

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| Section 10: Compensation |

See our guide on [Compensating Research Participants](https://campusirb.duke.edu/node/70).

1. **Will participants be compensated (e.g. cash, gift cards, lottery entries, course credit)?**

Yes  No

1. **How will participants be compensated?** Check all that apply.

Bonus Payments

Cash

Check

Course Credit

Gift Card – Electronic Amazon Gift Card

Gift Card – Other (please specify: Click or tap here to enter text.)

Lottery/Drawing

Online and/or Pre-arranged Panel Payments (e.g. Lucid, Mturk, Qualtrics Panel, YouGov, etc.)

Other (please specify: Direct Deposit/paper check depending on how they receive their usual TA pay in the Duke payroll system.)

1. **Please describe each type of compensation and how they will be distributed.** If multiple payments will be made, please describe.

|  |
| --- |
| We will provide $100 Amazon gift card to each faculty interviewee as an honorarium.    To receive compensation for participation in the research study, participants must complete a Research Participant Payment Form. Contents of this form is provided in the Appendix. Duke Employees or Duke Students must provide their Duke Unique ID. Non-Duke participants must provide their Social Security Number. To ensure secure collection of personal information, participants will have two ways of sharing their SSN.  We will offer to share a link to a designated Strongbox folder via which the participant may upload a form with the SSN. As some participants may be less comfortable with computer technology, we will also be able to collect their SSN verbally over the phone following the interview. The interviewer will immediately upload a form created in Duke Box with said SSN to Strongbox.  The SSNs will only reside in Strongbox until being submitted to the University for processing. In accordance with Disbursement Policy, SSNs will be submitted within 45 days. Once the SSNs have been loaded into SAP, we will promptly delete the SSNs from Strongbox.  ~~For the undergraduate interviews, no compensation will be offered.~~  Undergraduate students, all current TAs for an intro data science class, would be allowed to log an extra hour on their TA timesheets in the biweekly period they complete this interview. The timesheets are self-reported by students every two-week period, and encompass the grading, office hours, and lab session leading duties which sum 10-12 hours per week on average, sometimes less.  Stat undergrad TA wages change semester-to-semester and I am not aware of the current rate, but it is likely in the $15-18/hour range following Duke’s recent global minimum wage increase to $15/hr.    Their identity in participation would still be anonymous to anyone at Duke other than me, as the hours reported on these timesheets frequently vary and the day corresponding to the hour they log for this activity would not provide their identity, as students may complete grading duties at any time for however long it takes them. They would be voluntarily participating in activities related to materials which have intended classroom purposes for the course they are teaching. |

1. **Under what conditions will participants receive partial or no compensation?** For example:

* Participants must answer every question or complete all tasks.
* Participants must pass attention checks.
* Participants must achieve a certain accuracy score.
* Participants must spend a certain amount of time completing the study.
* Participants must complete multiple sessions.

|  |
| --- |
| Participants who show up for the interview, even if the interview doesn’t take the entire duration of 90 minutes, will be compensated in full.  ~~For the undergraduate interviews, no compensation will be offered.~~  The above statement will apply for the undergraduate interviews, except that they are currently scheduled for 60 minutes and thus participants will still be compensated in full if the interview lasts less than that time. The interview will be cut short to avoid ever going over 60 minutes, should that be the case. |

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| Section 11: Benefits |

1. **Describe any anticipated direct benefits of the research for individual participants.**

* The opportunity to participate in research is not a benefit
* Compensation is not a benefit
* If the research provides no direct benefits to participants, state “None”

|  |  |
| --- | --- |
| The assessment tool we’re developing is one they may directly use in the future.  For the undergraduate student interviews, none. | Click or tap here to enter text. |

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| Section 12: Risks of Harm |

1. **Will the research activities (e.g. questions, images) upset or distress participants?**

Yes  No

1. **Please elaborate on why you feel the research activities may or may not upset or distress participants.** If the answer to the above is “Yes”, describe the strategies you will use to mitigate the risks.

|  |
| --- |
| Click or tap here to enter text. |

1. **Are there any risks of physical harm or discomfort?**

Yes\*  No

1. **Please elaborate on why you feel like there will or will not be risks of physical harm or discomfort.** If the answer to the above is “Yes”, explain what the risks are and what steps you will take to mitigate the potential risks.

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| --- |
| Click or tap here to enter text. |

*\*If you need to screen out participants because of physical risks, please make sure this is addressed in the “Recruitment” section.*

|  |
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| Section 13: Confidentiality |

The next set of questions asks about the confidentiality of your participants and their data throughout the life of your project. Confidentiality will relate to the collection, storage, sharing, and future use of the data, including any direct and indirect identifiers.

**Direct identifiers** refer to any information that may readily identify someone, such as their name, email address, and phone number.

**Indirect identifiers** refer to a set of information that, when combined, can be used to figure out someone’s identity. Indirect identifiers depend on the population, and can include demographic information or a set of descriptors, such as job title and organization, that are unique to an individual or community.

See our [Guide to Confidentiality](https://campusirb.duke.edu/node/72).

*Note: The Duke IT Security Office (ITSO) has determined that* [*the use of non-Duke cloud services, like Google Drive, Apple iCloud, and DropBox are not approved*](https://security.duke.edu/policies/duke-services-and-data-classification) *for official Duke use.*

*Confidentiality | Recruitment*

1. **Do you need individually identifiable information, such as email addresses or phone numbers, to contact and recruit participants?**

Yes  No

**If YES, explain how the information will be collected, where they will be stored, and what will happen to the identifiers after the recruitment process is complete.**

|  |  |
| --- | --- |
| Participants will be hand-selected faculty members whom we already know; thus, this information is already collected and will not be discarded after the recruitment process.  The undergraduate participants will be Duke students whose contact information is already on file. After the interview, all identifiers (name and voice) and contact information will be deleted and dissociated from the collected data. | Click or tap here to enter text. |

*Confidentiality | Storage*

1. **Do you plan to collect and/or store any *direct* identifiers that will be linked to participants’ responses?** If you have a key linking identifiers with unique identification numbers, the data are considered identifiable. Audio recordings and images of participants’ faces are considered direct identifiers.

Yes  No

**If YES, please describe the *direct* identifiers, explain why they are necessary for your research, where you will store them, and how long you will keep them.** Be specific about your storage space (e.g. if it’s a “secure server at Duke”, specify which secure server).

|  |  |
| --- | --- |
| Interviewees’ audio recordings will be promptly transcribed and the original meeting recordings will be deleted.  The undergraduate student interview transcripts will also be deidentified by Evan Dragich by replacing the student’s name and initials with “Student X” before sharing with the rest of the research team. | Click or tap here to enter text. |

1. **Do you plan to collect and/or store any *indirect* identifiers about your participants?** Indirect identifiers are any descriptors, such as demographic or background information, that can be used to deduce your participants’ identity.

Yes  No

**If YES, please describe the *indirect* identifiers, explain why they are necessary for your research, where you will store them, and how long you will keep them.** Be specific about your storage space (e.g. if it’s a “secure server at Duke”, specify which secure server).

|  |
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| Click or tap here to enter text. |

1. **If someone outside the research team figured out who your participants are and the information you have collected about them, would your participants be at risk of harm?** Risks could include harm to their reputation, employability, increased social stigma, etc.

Yes  No

**Please elaborate.** For example, explain why participants would not be put at risk of harm, or describe the specific harms that could occur if individually identifiable data were accidentally made available to those outside the research team**.**

|  |  |
| --- | --- |
| No reasonable risk of harm would be incurred by providing feedback on a data science assessment tool. | Click or tap here to enter text. |

**Will you apply for a Certificate of Confidentiality to protect the data from subpoena if, for example, you have identifiable data about illegal or unlawful behavior?** (If your research is funded by the NIH, please select “Yes.”)

Yes  No  N/A

1. **Do you plan to have documentation (e.g. a key) that links a participant’s identifiers to their responses?**

Yes  No

**If YES, please describe the documentation, where it will be stored, how it will be protected, and who will have access to it.** Be specific about your storage space (e.g. if it’s a “secure server at Duke”, specify which secure server).

|  |
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| Click or tap here to enter text. |

1. **Where will the data be stored?** Be specific about your storage space (e.g. if it’s a “secure server at Duke”, specify which secure server).

|  |  |
| --- | --- |
| Transcription and notes data from interviews will be stored on Duke Box. | Click or tap here to enter text. |

1. **Who will have access to the data?**

|  |  |
| --- | --- |
| All members of the research team will have access to the transcription data. Only Mine Çetinkaya-Rundel and Evan Dragich will have access to the audio recordings, temporarily during the transcription stage.  All members of the research team will have access to the transcription data. For the undergraduate student interviews, only Evan Dragich will have access to the audio recordings, temporarily during the transcription stage. | Click or tap here to enter text. |

*Confidentiality | Reporting/Publishing*

1. **Will you use participants’ identities (e.g. names, indirect identifiers, photos, etc.) while sharing your research findings (e.g. in reports, publications, etc.)?**

Yes  No

**If YES, please explain how you will secure permission to do so.**

|  |
| --- |
| Click or tap here to enter text. |

1. **Based on your research topic, setting, and reported characteristics of your participants, could their identities be readily deduced by someone who read your findings?**

Yes  No

**Please provide a rationale for your response:**

|  |
| --- |
| We will only mention that at the stage of development of the assessment we have received feedback from colleagues at various types of institutions who teach introductory data science. We will not identify the institutions or the names of the colleagues.  We will only mention that at the stage of development of the assessment we have received feedback from Duke undergraduate students who have taken introductory data science. We will not identify the names of the students or any demographic information. |

*Confidentiality | Future Research and Data Sharing*

1. **Will you use the data you gather for future research?**

Yes  No

1. **Is there a possibility that you may want to share the data with researchers (other than anyone who has been listed as collaborators in Section 3) outside of the Duke research team listed on this protocol?**

Yes  No

**If YES, describe the accessibility of the data (e.g. will it be shared with specific researchers who request it, will it be uploaded to a restricted or public research archive, etc.).**

|  |
| --- |
| Click or tap here to enter text. |

**If YES, will the shared data include direct identifiers?**

Yes  No

**If YES, please describe the identifiers.**

|  |
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| Click or tap here to enter text. |

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| Section 14: ITSO Questions |

This section should be answered if your data are considered sensitive and identifiable AND/OR you have a Data Use Agreement (DUA) for this project.

If accidental release of the data will place participants at risk of harm, the data are classified as **sensitive**.

If the data include any information that could directly or indirectly allow someone to figure out who individual participants are, then the data are considered **identifiable**. This also includes photographs, audio recordings, and video recordings.

*Note: Other research oversight offices (apart from the Campus IRB) may apply the* [***sensitive*** *data classification*](https://security.duke.edu/policies/data-classification-standard) *if they determine the data must be protected to mitigate institutional risk. Campus IRB staff will notify you in the event their determination may affect the review process.*

1. **Are your data both sensitive and identifiable and/or do you have a DUA for this project?** Mark all that apply. Your answers in the Description of Activities (questions 8.2 and 8.3), Additional Data (questions 9.4- 9.6), and Confidentiality (questions 13.2-13.5, 13.8, 13.9, and 13.11) sections can help you answer this.

Yes - Sensitive and Identifiable Data  Yes - DUA  No\*

If YES, The following questions are intended to collect information about your data protection procedures. Your responses will be reviewed by the IRB and Duke’s Information Technology Security Office (ITSO). ITSO will review the data protection plan to ensure appropriate measures are in place to protect the data. The IRB will be unable to approve a submission without confirmation from ITSO.

Please review the [Developing Data Protection Plans](https://campusirb.duke.edu/node/96) guide for a list of best practices and ITSO recommendations. If you have any questions about data protection, contact [security@duke.edu](mailto:security@duke.edu).

### \*If NO, SKIP to Section 15. (Click the arrow to the left of “\*If NO” to temporarily collapse the ITSO questions).

1. **Please describe the devices (laptops, tablets, mobile phones, etc.) that will be used to collect, transfer, store, or analyze data, and how those devices will be protected.** Please note that security best practices include encryption of the mobile device or laptop, application of security patches, installation and regular updates of antivirus, and a password-protected screensaver.

|  |
| --- |
| Click or tap here to enter text. |

1. Who is your departmental or unit IT contact?

|  |
| --- |
| Click or tap here to enter text. |

1. Who is responsible for data security, including upgrades?

|  |
| --- |
| Click or tap here to enter text. |

1. Data need to be stored securely. Select the ITSO-approved environment where you will store and analyze the data.

DukeBox

OIT Protected Network

Protected Research Data Network (PRDN)

Other (please specify: Click or tap here to enter text.)

1. If data will not be stored on an ITSO-approved server (listed above), where will they be stored? Be specific.

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| Click or tap here to enter text. |

*Note: ITSO has determined that* [*the use of non-Duke cloud services, like Google Drive, Apple iCloud, and DropBox are not approved*](https://security.duke.edu/policies/duke-services-and-data-classification) *for official Duke use.*

1. **Will both direct and indirect identifiers be removed from the data**?

Yes  No

**If NO, explain why the identifiers will not be removed.**

|  |
| --- |
| Click or tap here to enter text. |

**If YES, describe the process for removing the identifiers, including when they will be removed and by whom. In some cases, a third-party may be required to remove identifiers from the data.**

|  |
| --- |
| Click or tap here to enter text. |

1. **Please identify each individual (including non-Duke researchers) who will have access to the data and describe their role in the project.**

|  |
| --- |
| Click or tap here to enter text. |

1. **How will access to the identifying information be controlled and who will authorize access to the identifiable data?**

|  |
| --- |
| Click or tap here to enter text. |

1. **Will data be transferred for analysis?**

Yes  No

1. **How will data be transferred and where will they be analyzed?**

|  |
| --- |
| Click or tap here to enter text. |

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| Section 15: Informed Consent Process |

Here you will answer questions about your informed consent process. You will be asked to upload your consent language in the Appendices.

See our [Informed Consent Guide](https://campusirb.duke.edu/node/73).

1. **Describe how and where the consent process will take place.** If someone is expected to provide consent or permission for your participants, please explain. For example, parents are expected to provide permission for their child to participate; legally authorized representatives (LAR) provide consent for those with diminished capacity.

|  |  |
| --- | --- |
| Prior to the interview group, we will have participants read and sign a digital consent form delivered via Qualtrics in order to participate in the study. | Click or tap here to enter text. |

*Note: Please include your protocol ID number within your consent process.*

1. **Are you requesting a waiver of the requirement that participants physically sign the consent process (i.e. a waiver of documentation of consent)?**

Yes  No

**If YES, please select all that apply.**

Participants do not read and write. (If there is a risk of harm, a third-party witness will be present.)

Data will be collected on-line. Participants will have the option to “click” to the survey if they would like to take part in the study.

The study data will be collected through a telephone or online/virtual interview. If appropriate, provide a copy of the consent process for the participant’s reference.

Participants will complete a mailed survey. Prepare a cover letter that includes all the elements of informed consent. People who wish to take part will return the survey; thereby, demonstrating their consent. They do not need to sign a consent form.

The research will take place in settings where written consent is considered disrespectful or in settings in which asking people to sign a document would cause distress.

The primary risk to participants is a breach of confidentiality and a signed consent form or audio-recorded statement would be the only documented link between individuals and their participation in the study. (Example: a study about people engaged in illegal behaviors.)

*Note: In most cases, other than telephone interviews, where the consent process is oral, researchers should give participants contact information in case the participants have any questions later. It may be appropriate to give them a copy of the oral script for reference.*

1. **Are you requesting that one or more** [**elements of informed consent**](https://campusirb.duke.edu/resources/guides/elements-informed-consent) **be altered or waived?**

There should always be a process for sharing information about the research study with prospective participants. However, a consent procedure does not have to include all of the required elements of informed consent. For example, the IRB can waive the inclusion of the purpose statement if there is valid justification that it might affect how participants respond.

Yes  No

**If YES, please describe what element(s) you are asking to waive or specify that you are asking to waive consent entirely, and complete Question 15.5.**

|  |
| --- |
| Click or tap here to enter text. |

1. **Are you asking to waive parental permission and/or child assent?**

Yes  No  N/A

If YES, please complete Question 15.5.

1. **The IRB may approve your request to waive element(s) of informed consent if your research meets the following criteria.** Please address each criterion to explain why a wavier is necessary for your study (do not just copy and paste the criteria into the responses).

**Criterion 1**: The research involves no more than minimal risk to the subjects.

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| --- |
| Click or tap here to enter text. |

**Criterion 2**: The waiver or alteration will not adversely affect the rights and welfare of the subjects.

|  |
| --- |
| Click or tap here to enter text. |

**Criterion 3**: The research could not practicably be carried out without the waiver or alteration.

|  |
| --- |
| Click or tap here to enter text. |

**Criterion 4**: Whenever appropriate, the subjects will be provided with additional pertinent information after participation.

|  |
| --- |
| Click or tap here to enter text. |

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| Appendices: Study Documents and Consent Processes |

In this section, please include any study documents (e.g. recruitment materials, survey/interview questions, measures and instruments, DUAs, etc.) and consent processes that you will use in your study.

**Recruitment email:**

Hello, my name is Evan Dragich and I’m an undergraduate Statistical Science student at Duke University conducting research for my Honors Thesis, working with Dr. Mine Çetinkaya-Rundel and Dr. Maria Tackett. I am working with an interinstitutional team of researchers, including Dr. Andy Zieffler and Chelsey Legacy (University of Minnesota), Dr. Mine Dogucu (UC Irvine) and Dr. Matt Beckman (Penn State University) on developing a standardized data science assessment, to accurately measure introductory data science students’ learning outcomes.

We have a draft assessment ready and, at this stage, we’re hoping to get feedback from faculty teaching data science and related fields on our draft and we’d love to have your feedback! If you agree to participate, we will ask you to join a Zoom call with a few of the research team members (no more than 5). During the call, we will ask you to reason through a current prototype of the data science assessment, thinking out loud to provide maximal insight on potential student thought processes and inform potential modifications. We anticipate this process taking no more than two hours 2 hours total.

Only the **audio** of the session will be recorded; cameras will **not** be used by any participants, including yourself. There are no foreseeable risks or discomforts anticipated with your participation in this study.

If you are interested in participating, please let me know by responding to this email. I will then reply with details on scheduling the call at a time that works best for you.

If you have any questions about this research, please contact me at [emd48@duke.edu](mailto:emd48@duke.edu). You can also contact my faculty advisor, Dr. Mine Çetinkaya-Rundel., at [mc301@duke.edu](mailto:mc301@duke.edu).

**Undergraduate Student Recruitment email:**

Hello, my name is Evan Dragich and I’m an undergraduate Statistical Science student at Duke University conducting research for my Honors Thesis, working with Dr. Mine Çetinkaya-Rundel and Dr. Maria Tackett. I am working with an interinstitutional team of researchers, including Dr. Andy Zieffler and Chelsey Legacy (University of Minnesota), Dr. Mine Dogucu (UC Irvine) and Dr. Matt Beckman (Penn State University) on developing a standardized data science assessment, to accurately measure introductory data science students’ learning outcomes.

We have a draft assessment ready and, at this stage, we’re hoping to get feedback from students who have taken STA199 on our draft and we’d love to have your feedback! If you agree to participate, we will ask you to join a Zoom call with a few of the research team members (no more than 5). During the call, we will ask you to reason through a current prototype of the data science assessment, thinking out loud to provide maximal insight on potential student thought processes and inform potential modifications. We anticipate this process taking no more than one (1) hour total.

Only the **audio** of the session will be recorded; cameras will **not** be used by any participants, including yourself. Throughout the recruitment and interview process, you will only interact with me until the recording is transcribed; none of the Duke professors involved will know your identity or hear your voice at any point of this study. There are no foreseeable risks or discomforts anticipated with your participation in this study.

If you choose to participate, you can count the hour you spend on this project towards your TA work for that week and log it on your timecard.

If you are interested in participating, please let me know by responding to this email. I will then reply with details on scheduling the call at a time that works best for you.

If you have any questions about this research, please contact me at [emd48@duke.edu](mailto:emd48@duke.edu). can also contact Duke Campus IRB at [campusirb@duke.edu](mailto:campusirb@duke.edu). I would also be happy to anonymously pass on any questions regarding your involvement to my faculty advisor, Dr. Mine Çetinkaya-Rundel.

**Pre-interview information and consent email:**

Thank you for your interest in participating in our project for developing an assessment to measure data science learning outcomes for introductory data science students. We are scheduled to meet on Zoom for your interview on \_\_\_\_\_\_\_ (date) at \_\_\_\_\_\_ (time). The Zoom link is \_\_\_\_\_\_ (Zoom link).

In this email we describe details of informed consent, compensation for participation in the study, and the structure of the interview.

**Informed consent:**

Key Information

If you agree to participate, we will ask you to join a Zoom call with a few of the research team members (no more than 5). During the call, we will introduce the data science assessment we have designed and ask you to share feedback on the assessment as a whole as well as each question in the assessment to help us improve the coverage and wording of items. We anticipate this process taking no more than two hours.

We will have the option to keep cameras on during the interview however only audio will be recorded and retained for a short period of time for transcription. Once transcribed, the audio recordings will be deleted. The transcripts will only be shared with other researchers on the research team and will not be made public and they will only be used to improve the assessment, not as part of future research. No information on individuals will be collected, aside from your faculty affiliation. No individuals will be directly identified and all findings will be reported in aggregate, except for shorter, specific quotes which will not be attributed to any identifying information.

There are no foreseeable risks or discomforts anticipated with your participation in this study. It is completely up to you whether to participate. You may skip questions or withdraw at any time for any reason. As a professor in / in a field closely related to data science, there is direct benefit to you as a participant  as you will be able to directly provide feedback for and shape an assessment which may end up being of use to you in your duties as an instructor.

At the beginning of the interview we will ask you if you consent to being recorded and whether you have any questions about the informed consent process. You can let us know of any questions then, at any time during the interview, or prior to the interview via email.

**Compensation:**

You will be eligible to receive a $100 Amazon e-gift card for your participation. You may choose to take this compensation or decline it. In order to receive payment for your participation in this study, you will be asked to fill out a Research Participant Payment Form. For Duke faculty, this form will ask for your Duke Unique ID number. For non-Duke faculty, the form will ask for your Social Security number for tax purposes. This form will be collected separately from your consent form, will not be linked to any other information you provide, and will be stored for up to 45 days in a secure Duke StrongBox folder. You will be able to directly upload this form to the secure folder or give us your Social Security Number at the end of the interview on Zoom. If you do not want to provide your Social Security number you can still be in the study but you cannot receive payment.

**Interview structure:**

We will start the interview with an overview of the assessment. and two big picture questions:

* What topics must be in an introductory data science course?
* What topics are nice to have in an introductory data science course?

Then, we will move on to individual assessment items and for each item we will ask you the following three questions:

* Do you think this item addresses a topic that should be covered in an intro data science curriculum?
* If no, why? And are there ways we can modify it to address an introductory data science topic?
* If yes, do you suggest any improvements?
* What introductory data science topics would you “tag” this passage/item with?
* Any other reactions, comments, or suggestions on this item?

We will take a 10-minute break roughly one hour into the interview. Once we complete your review of the individual items, we will close with three more big picture questions:

* What are the strengths of the current assessment?
* What topics are missing from the current assessment?
* What is in the current assessment, but doesn’t belong?

If you have any questions about this research, please contact me at emd48@duke.edu. You can also contact my faculty advisor, Dr. Mine Çetinkaya-Rundel, at mc301@duke.edu. For questions about your rights, contact the Duke University Institutional Review Board at 919-684-3030 or [campusirb@duke.edu](mailto:campusirb@duke.edu). Please refer to protocol number 2022-0399 if you contact the IRB.

**Undergraduate Student Pre-interview information and consent email:**

Thank you for your interest in participating in our project for developing an assessment to measure data science learning outcomes for introductory data science students. We are scheduled to meet on Zoom for your interview on \_\_\_\_\_\_\_ (date) at \_\_\_\_\_\_ (time). The Zoom link is \_\_\_\_\_\_ (Zoom link).

In this email we describe details of informed consentand the structure of the interview.

**Informed consent:**

Key Information

If you agree to participate, we will ask you to join a Zoom call with a few of the research team members (no more than 5). During the call, we will introduce the data science assessment we have designed and ask you to share feedback on the assessment as well as each question in the assessment to help us improve the coverage and wording of items. We anticipate this process taking no more than one hour.

We will have the option to keep cameras on during the interview however only audio will be recorded and retained for a short period of time for transcription. Once transcribed, the audio recordings will be deleted. The transcripts will only be shared with other researchers on the research team and will not be made public and they will only be used to improve the assessment, not as part of future research. No information on individuals will be collected, aside from your status as a former STA199 student. Your decision to participate (or not) will have no bearing whatsoever on your current or future standing in any courses at Duke. No individuals will be directly identified, and all findings will be reported in aggregate, except for shorter, specific quotes which will not be attributed to any identifying information.

There are no foreseeable risks or discomforts anticipated with your participation in this study. It is completely up to you whether to participate. You may skip questions or withdraw at any time for any reason.

At the beginning of the interview, we will ask you if you consent to being recorded and whether you have any questions about the informed consent process. You can let us know of any questions then, at any time during the interview, or prior to the interview via email.

**Interview structure:**

We will start the interview with an overview of the assessment.

Then, we will move on to individual assessment items and for each item we will ask you the following two questions:

* What is your thought process to answer this question, and which answer would you select?
* Is the formatting and wording clear?

We will take a 5-minute break roughly thirty minutes into the interview. Once we complete your review of the individual items, we will close with three more big picture questions:

* Are the pacing and length appropriate?
* Based on what you remember learning in intro data science, what topics are missing from the current assessment?
* Based on what you remember learning in intro data science, what is in the current assessment, but doesn’t belong?

If you have any questions about this research, please contact me at emd48@duke.edu. You can also ask me to anonymously pass on questions to my faculty advisor, Dr. Mine Çetinkaya-Rundel. For questions about your rights, contact the Duke University Institutional Review Board at 919-684-3030 or [campusirb@duke.edu](mailto:campusirb@duke.edu). Please refer to protocol number 2022-0399 if you contact the IRB.

**Interview script**

Thank you so much for joining me today! My name is Evan Dragich and I’m an undergraduate Statistical Science student at Duke University conducting research for my Honors Thesis. I am working with a multi-institutional team of researchers to develop an assessment to measure data science learning outcomes for introductory data science students.

*\*interviewee introduction\**

You have already received the informed consent information in your email. Do you have any questions related to that? If not, do you consent to us recording and transcribing your audio?

Before we begin the recording, let’s conduct a quick audio/visual screensharing check.

\*check technology\*

Alright, are you ready to begin the interview?

\*yes\*

***START RECORDING***

Before diving into the assessment, I will ask you two open-ended brainstorming questions. The first one is: “What topics **must** be in an introductory data science course?” And for context, please describe where in the curriculum you see these fitting in.

*\*\* answer\*\**

The next question is similar. “What topics *are nice to have* in an introductory data science course?” And again for context, please describe where in the curriculum you see these fitting in.

*\*\* answer \**\*

Thank you so much for your answers! Now, let’s view the current assessment.

***SEND ASSESSMENT LINK IN CHAT***

There are 26 passages in the assessment; we will take a 10-minute break in the interview after 13 passages or roughly one hour intro the interview, whichever comes first.

For each passage, I will display the stem and items for you to read. I will then ask you to respond to three questions:

* Do you think this question addresses a topic that **should be covered** in an intro data science curriculum?
  + If no, why? And are there ways we can modify it to address an introductory data science topic?
  + If yes, do you suggest any improvements?
* What introductory data science topics would you “tag” this passage/item with?
* Any other reactions, comments, or suggestions on this item?

Are you ready to begin with the first item?

\*\* yes \*\*

\*\*\*\*\*rinse and repeat all the way until the break\*\*\*\*

We will now take a 10 minute break, and resume the interview at \_\_\_\_\_. Thank you so much for your feedback so far!

\*\*\*\*\*rinse and repeat all the way until the end\*\*\*\*

That was the last passage, and we have three culminating open-ended questions before we wrap up. To help you jog your memory about the different passages, [here](https://mdogucu.github.io/ds-assessment/) is the current live web link for you to browse as we discuss.

The first is, “What are the strengths of the current assessment?”

*\*\* answer\*\**

The second is “What topics are missing from the current assessment that you think should be covered in a one term introductory data science course?”

*\*\* answer\*\**

*Follow up with suggestions for items.*

And finally, the third is “What is in the current assessment but doesn’t belong?”

*\*\* answer\*\**

Thank you so much for your answers. That concludes the formal interview portion of today’s session. Do you have any other thoughts to add, or any other questions for me at this time? If you think of any later, I will be sending a follow-up email.

\*\* response \*\*

***END RECORDING***

As I mentioned, we are offering interviewees $100 Amazon e-gift cards as compensation. Are you interested in receiving this compensation? Note that for non-Duke employees this means we will need to collect your Social Security Number for tax purposes. If you’re interested, we can email you a research participation payment form for you to fill out with your information or you can give us your information now. Your SSN will only reside in Strongbox until being submitted to the University for processing. Your SSN will be retained in Strongbox for no more than 45 days. Once your SSN has been loaded into Duke’s Accounting’s secure server, we will promptly delete your SSN from Strongbox.

\*\* waits for response \*\*

Thank you so much for your time today. We are very grateful for your valuable insight and comments on the assessment. I will be sending a follow-up email with the consent information, as well as contact information for me, my advisor Dr. Çetinkaya-Rundel, and Duke Campus IRB. Have a great day!

**Research Participant Payment Form**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Email address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Gift card will be sent to this address)

Duke employee: YES If Duke employee, Duke Unique ID: \_\_\_\_\_\_\_\_\_\_\_

NO If non-Duke employee, SSN: \_\_\_\_\_\_\_\_\_\_\_

Note: The SSNs will only reside in Strongbox until being submitted to the University for processing. In accordance with Disbursement Policy, SSNs will be submitted within 45 days. Once the SSNs have been loaded into SAP, we will promptly delete the SSNs from Strongbox.

**Undergraduate Student Interview script**

Thank you so much for joining me today! My name is Evan Dragich and I’m an undergraduate Statistical Science student at Duke University conducting research for my Honors Thesis. I am working with a multi-institutional team of researchers to develop an assessment to measure data science learning outcomes for introductory data science students.

*\*interviewee introduction\**

You have already received the informed consent information in your email. Do you have any questions related to that? If not, do you consent to us recording and transcribing your audio?

Before we begin the recording, let’s conduct a quick audio/visual screensharing check.

\*check technology\*

Alright, are you ready to begin the interview?

\*yes\*

***START RECORDING***

***SEND ASSESSMENT LINK IN CHAT***

There are 15 passages in the assessment; we will take a 5-minute break in the interview after 8 passages or roughly one hour intro the interview, whichever comes first.

For each passage, I will display the stem and items for you to read. I will then ask you to respond to two questions:

* What is your thought process to answer this question, and which answer would you select?
* Is the formatting and wording clear?

Are you ready to begin with the first item?

\*\* yes \*\*

\*\*\*\*\*rinse and repeat all the way until the break\*\*\*\*

We will now take a 5 minute break, and resume the interview at \_\_\_\_\_. Thank you so much for your feedback so far!

\*\*\*\*\*rinse and repeat all the way until the end\*\*\*\*

That was the last passage, and we have three culminating open-ended questions before we wrap up. To help you jog your memory about the different passages, [here](https://mdogucu.github.io/ds-assessment/) is the current live web link for you to browse as we discuss.

The first is, “Is the pacing and length appropriate?”

*\*\* answer\*\**

The second is “Based on what you remember learning in intro data science, what topics are missing from the current assessment?

*\*\* answer\*\**

*Follow up with suggestions for items.*

And finally, the third is “Based on what you remember learning in intro data science, what is in the current assessment, but doesn’t belong?”

*\*\* answer\*\**

Thank you so much for your answers. That concludes the formal interview portion of today’s session. Do you have any other thoughts to add, or any other questions for me at this time? If you think of any later, I will be sending a follow-up email.

\*\* response \*\*

***END RECORDING***

Thank you so much for your time today. We are very grateful for your valuable insight and comments on the assessment. I will be sending a follow-up email with the consent information, as well as contact information for me, my advisor Dr. Çetinkaya-Rundel, and Duke Campus IRB. Have a great day!

**Survey/Questionnaire**

[Here](https://duke.box.com/s/z380vvdoi1whxo4alhw0qfpnhqexocgd) is a Duke Box folder containing a 32-page PDF of the current version of the Data Science Assessment.

[Here](https://duke.box.com/s/4qyq5ew9kemwo4cmf3612gmfamtkl52t) is a Duke Box folder containing the updated 38-page PDF of the current version of the Data Science Assessment.

https://duke.box.com/s/4qyq5ew9kemwo4cmf3612gmfamtkl52t