

Bucknell University Survey Research Primer

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Introduction

Every survey is a major research project, requiring time, effort, and careful thought on the part of the researcher. It is also an imposition on the community, since it asks for their time, effort, and careful thought as well.

This imposition can be reduced if the survey is thoughtfully designed, respectful of its participants, carefully timed and coordinated with other surveys on campus, and—most importantly—*if the survey serves an important purpose, whether it is institutional improvement or contributing to the generalizable knowledge, and the results are reported, shared, and used in meaningful ways.*

To help you get started, we outline the five stages of a survey project below. We include links to additional resources as well as to Bucknell policies and procedures that may apply.

Stage 1. Planning the Survey

Stage 2. Developing and Testing the Survey

Stage 3. Survey Administration and Data Collection

Stage 4. Data Analysis and Interpretation

Stage 5. Sharing and Using the Survey Results

We hope that the information in this primer will be helpful to you. However, every survey project is different. So if you are planning a new survey involving members of Bucknell community, we encourage you to contact the [Office of Institutional Research & Planning \(OIRP\)](#) to schedule a consultation.

Stage 1. Planning the Survey

The planning stage is critical. The more carefully you plan your survey project, starting with the research questions, the more likely it is that the survey will be effective and provide you with reliable, interpretable, usable results. Here are some questions to consider:

- *What* do you want to learn from the survey? (If possible, make a list of *clear and specific research questions*. This list will be your blueprint both when developing the survey instrument and, later on, when analyzing and interpreting the survey data.)
- *Why* do you want to know it? How will you *use* the information you collect (e.g., for internal use to improve your program, or to publish in a peer-reviewed journal)?
- Can you get this information from *another source*, without conducting a new survey (from published articles, existing survey data, factual data, interviews, focus groups, etc.)?
- If a new survey is needed, who will be your *participants* (including any subgroups)? How likely are they to participate in the survey, and if not very, what are some ways you could encourage their participation?
- What is *your* timeline for completing the entire project, including time for analyses and writing up the final report (so you can count back from that to when the survey should be live)? What about the best timing for *your participants* (e.g., not during final exams)?
- Are there *other similar surveys* scheduled around the same time? And if so, could you join forces and pool the questions into one longer survey, or ask the other researchers to share data with you? (Participants may be unwilling to take two similar surveys close in time. In fact, it's often challenging to get them to participate even in one!)

The OIRP offers support and guidance on all these aspects of planning your survey project. We also share survey instruments, data files, and reports from several campus-wide surveys, as well as a schedule of undergraduate surveys going forward, on our [Survey Research](#) web page.

Stage 2. Developing and Testing the Survey

Once the purpose, participants, and timeline of your survey project are clear, here are additional important questions to consider, as they will determine your next steps:

- Is your survey an *institutional survey* (i.e., your survey results are intended for internal use, such as planning, assessment, or program improvement), or a *research survey* (i.e., your survey results are meant to contribute to generalizable knowledge and are intended for peer-reviewed publication)?

If you are conducting a research survey at Bucknell, you will likely need an approval from [Bucknell's Institutional Review Board \(IRB\)](#), responsible for protecting all human research participants. The IRB will review your *proposal* to make sure that the imposition that your survey will cause to your participants, as well as any potential risks or discomforts from participation (including those related to data privacy), are reasonable and justified by the knowledge you will obtain and share with other researchers in your discipline. If you are new to research, you may also need to complete a basic training on ethical conduct of human subject research. Contact the IRB chair for more information.

The IRB requires that you ask for your participants' *informed consent* before they do the survey, and that they can deny their consent, or withdraw it at any point during the study, without any negative consequences. If you build your survey using an online platform such as Qualtrics, the informed consent will come on the very first page of your survey, before participants answer any questions and you collect any data from them. The survey should contain a brief but clear explanation of what the study is about, what the participants will be asked to do, and any risks or discomforts you anticipate (e.g., questions dealing with sensitive topics).

Here is a simple [informed consent page](#) in Qualtrics, together with a lot of other helpful information. Note that the consent page ends in a question (e.g., *Do you consent to participating in the survey? Yes or No*), and that it should be a [forced-response question](#), meaning that the participant is required to answer it before they can proceed. If they answer *Yes*, they will continue to the first survey question or, if you are using groups, to the first survey block appropriate for their group. But if they answer *No*, they will be skipped to the end of the survey, thanked, and dismissed. (See a [KSU tutorial](#) on two ways to implement this in Qualtrics; and Qualtrics help topics on [Skip Logic](#) and [Branch Logic](#) to learn more about the two approaches. Or contact the OIRP if you need help.)

- Are you planning to *use an existing survey*, or *develop your own*? Or take an existing survey and adapt it to your needs (assuming you have the necessary permissions)?

If you are conducting a research survey and intend to publish the results in a peer-reviewed journal, you may need to use an established, validated survey instrument commonly used in your field. Similarly, if you are conducting an institutional survey, but your main purpose is to compare or *benchmark* your results against those in peer institutions, a widely used, national survey may be your first choice. Here are three primary reasons:

- Since the survey already exists, you will not have to develop it yourself, which can save you a lot of time.
- The analyses and interpretation of results should also be easier, since you can look at the published reports and follow their procedures.
- Typically, published surveys have already been tested for, and demonstrated, *validity* (the instrument truthfully and accurately measuring what it is intended to measure) and *reliability* (the instrument producing consistent results). This gives you more confidence in the results obtained with that survey instrument, compared to a new, in-house survey.

However, using a published survey can also have serious drawbacks. The most common drawback is that a published survey may not be a good fit to your research questions or to your institutional context, so that after collecting and analyzing the data, you may discover that the survey results do not tell you what you really want to know. This may be because some questions use unfamiliar terms or simply do not apply to Bucknell; or, conversely, because the survey does not include some questions that are essential to you.

One compromise is to start with a published survey but adapt it to your context and needs (respecting the copyright and securing the authors' permission if needed). However, you should be aware that even subtle changes in wording of the questions may affect the participants' responses, and you may no longer be able to meaningfully compare your results with those from peer institutions or from published literature.

Another approach may be to *add* a small number of questions that are tailored to Bucknell and into your project in a published survey. In fact, several national surveys, such as the National Survey of Student Engagement or HERI Faculty Survey, allow the participating institutions to do just that.

If you decide to develop your own survey, here is our best advice: ***A good survey is like a focused, honest, and productive conversation.*** It should provide you, the researcher, with clear, interpretable answers to your research questions. At the same time, it should tap into what your participants care and want to talk about, and it should make it as easy as possible for them to share their thoughts and experiences on the topic.

As you sit down to write your survey questions, keep these things in mind. Ideally, you should also ***test all the questions on a few people from your target population and get their feedback*** before sending the survey out.

- Did you include a brief introduction at the start of the survey, to explain to the participants what the survey is about and why it matters, and to encourage them to give honest, thoughtful answers? (This applies even if you don't need an informed consent.)
- Is each question clear and straightforward? Could it be misinterpreted in any way?
- For multiple-choice questions, did you include all the possible response options, to make sure that a participant doesn't get stuck because no option applies to them?
 - Consider adding an *Other (briefly explain):* ____ option in your categorical questions, and a *Not Applicable (briefly explain):* ____ option in your rating questions.
- Also for multiple-choice questions, do any options overlap (they shouldn't), or could more than one option apply to your participants (in which case you may need a "select top two" or "select all that apply" question type)?
- Did you specify ***the period of time*** that you want the participants to report on (e.g., in the past week, in the current semester, since starting at Bucknell, etc.)? Questions with

specific and recent timeframes may be easier to answer, and also yield more accurate data, than do very general questions. (Although, depending on your topic and purpose, a general question may be more appropriate, e.g., “Have you ever...?”)

- If your survey covers several topics, did you group all related questions together, allowing the participants to focus on one topic at a time—or do you jump from topic to topic, which could be jarring or confusing for the participants?
- Did you use any jargon, technical terms, or abbreviations that your participants may not know? If they are necessary, consider including definitions.
- Many participants will take your survey on their smartphones. Are any questions so long and wordy that they don’t fit on the screen?
- Did you include ***at least one open-ended question***, with a generous word limit, so the participant have an opportunity to speak their mind on the topic in their own words? (And you could consider adding such an open-ended question after each crucial closed-ended question, so the participants can explain or expand on their answer if they wish.)

As a general rule, ***the simplest question type often works best***, both for the participants when responding to the survey, and, later on, for you the researcher when analyzing and interpreting the data. In addition, only the basic question types will make your survey accessible to participants with visual impairment, who rely on text reader applications. But if you are still tempted to use the fancier and less common question types, consider what the results will look like and how you might graph and interpret them in your reports—or better yet, run a preview of the survey and actually look at the data file, to see for yourself.

Below are the most basic, straightforward, and commonly used types of survey questions. We recommend that you start with those, and only move to more complex or unusual question types formats if these basic types are insufficient to answer your research questions.

Multiple-choice questions

Multiple-choice questions consist of a question stem, followed by multiple response options to choose from. Multiple-choice questions are widely used, familiar, quick to answer, and straightforward to analyze, graph, and interpret. If the questions are clearly and carefully worded, and include all the relevant response options, they can provide a wealth of information.

What is your one main source of financial support while attending college?

My own earnings

Financial aid

Student loans

My parents

Other (please specify): _____

Are you graduating with a minor, and if so, what is it?

No

Yes: _____

How many hours did you study last week?

0

1-3 hours

4-6 hours

7-10 hours

More than 10 hours

Things to keep in mind when using multiple-choice questions:

- Multiple-choice questions are particularly well suited for collecting factual information (*What? When? Where?*). But a key multiple-choice question in the survey can be followed with an open-ended question asking for an explanation, elaboration, or further comments (*Why/Why not? How? Ways to improve?*).
- A limit of 5-6 options is recommended (if you need to include more options, consider dividing the question into 2 separate questions based on some grouping principle).
- The options should be exhaustive, but it's still a good idea to include the *Other (briefly explain): _____* text box as the last option.
- If there is one common response and you want to exclude it, put it right in the stem of the questions (e.g., "Aside from course requirements, what...?").
- Typically, participants select only one option. "Select the top two" is another possibility. Use "Select all that apply" sparingly, as the results may be difficult to interpret.

Rating scale questions

As the name suggests, rating scale questions employ a rating scale. This could be a Likert rating scale, which spans from negative to positive values, and may or may not include a neutral option in the middle, depending on the question. However, it could also be any other scale that will make sense to participants in the context of the question, and that will let you collect the information you need.

Rating scales are very versatile, but give some thought to what rating scale would be best for the question. Like multiple-choice questions, ratings scale questions are familiar to participants, straightforward to analyze, graph, and interpret, and can be very informative, provided that they are clearly and carefully worded.

Overall, how satisfied were you with the workshop?

- Very dissatisfied
- Somewhat dissatisfied
- Neutral
- Somewhat satisfied
- Very satisfied
- Did not attend the workshop because: _____

What are your thoughts on the number of participants in the workshop?

- Too few
- Just right
- Too many
- Not sure/ No opinion

How helpful did you find the mentors in the workshop?

- Not at all helpful
- Not very helpful
- Neutral
- Somewhat helpful
- Very helpful

Things to keep in mind when using multiple-choice questions and rating-scale questions:

- The response options can be arranged vertically or horizontally. If you arrange them vertically, it's best if they fit in one row, and it should be clear which checkboxes go with which options.
- Carefully consider if you want to include a *Neutral* option in the middle. In some cases, participants may truly not have an opinion, and you may want your data to reflect that. However, the *Neutral* option may also give them an easy way out, and you may prefer to nudge them to decide between a positive and a negative option instead.
- *Neutral/ No opinion* is not the same as *Not applicable*. Participants who did not attend an event or use a service may simply not be able to answer the question; for them, the *Not applicable* option (or a more specific equivalent) is more accurate.
- In English, we read left to right. It may seem attractive to start your rating scale with the most positive option on the left, so the participants read it first. But be aware that this is less intuitive than if you **start with the most negative option on the left**; in fact, more savvy participants may even perceive it as manipulative (gently biasing them to select a positive option over a negative one).
- If you start with the most positive option on the left, don't forget to reverse code it (especially if you plan to test for correlations).
- Whichever direction you choose (negative-to-positive or positive-to-negative), keep the same direction throughout the survey to avoid confusion.

- Use reverse-scaled questions with caution, and only if you have a good reason (and not to trick the participants or check if they're paying attention). If you want to make sure that they are paying attention, including an open-ended question to let them expand on their answer to a key question may work better.

Matrix questions

Questions that share a topic and *use the same exact scale* can be combined into a matrix question. In some cases, space allowing, you may also be able to include a prompt for a brief explanation of the selected response, right within the matrix. Because these questions can get quite large, test them on a smartphone to make sure they fit on the screen.

The [Academic Program Name] has four learning goals. During your time in the program, both in class and outside of class, how well do you feel you have achieved each learning goal?

	<i>Not at all</i>	<i>Somewhat</i>	<i>Well</i>	<i>Very well</i>	<i>Briefly explain your answer: [text]</i>
<i>[Learning goal #1]</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<i>[Learning goal #2]</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<i>[Learning goal #3]</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<i>[Learning goal #4]</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Which of the following are possible future goals or plans for you as a writer?

	<i>Very unlikely</i>	<i>Somewhat unlikely</i>	<i>Not sure yet</i>	<i>Quite likely</i>	<i>Definitely happening</i>
<i>Writing for pleasure (for yourself)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Writing for publication</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Journalism</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>A professional career in publishing or editing</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>A professional career in advertising or marketing</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>An MFA degree</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>A graduate degree other than the MFA (Ph.D., etc.)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Work that involves grant writing</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Work that involves digital media</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Other: _____</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Open-ended/ text response questions

Rather than providing the response options, open-ended questions give participants an opportunity to respond in their own words, as well as in greater detail and at greater length, typically by typing text into a text box. Open-ended questions can be sentence completion items, where the stem is already provided and the participants are asked for a very specific piece of information (and often giving them only a very limited space to do so). Or they can be truly open-ended, asking for participants to share their thoughts in several sentences or paragraphs.

We recommend that *every survey should include at least one open-ended question*, at the end. Without such a question, participants may have valuable insights to share but never have a chance to share them, and these potentially important data will be missed. However, *it may be beneficial to add an open-ended question after each critical closed-ended question* (multiple-choice or rating-scale) in the survey, e.g., asking participants to explain their answer, illustrate with an example, or share any further comments or suggestions on the topic.

The participants can skip the open-ended questions if they want, so these questions don't necessarily add to the time needed to complete the survey; and those participants who have something to say will appreciate the opportunity to do so. The information gleaned from the participants' comments may prove to be very valuable, including in interpreting or contextualizing the results from the closed-ended questions.

The best advice I could give new freshmen would be to: _____

[After the question about the number of students attending the workshop.]
Do you have any comments or suggestions about the number of students? If you answered "too few" or "too many," why? _____

Which workshop did you like the best, and why? _____

Which workshop was your least favorite, and why? _____

How have the 200-level and 300-level Creative Writing workshops influenced your development as a writer and/or your appreciation of literature?

[After the matrix question about career plans.]
Please tell us more about your future goals and plans here.

If you have any other thoughts, ideas, or suggestions about any aspect of the Creative Writing major at Bucknell, please share them here?

If you are planning a survey involving Bucknell community members, and you have questions about survey development, please contact Wei You at the OIRP.

Stage 3. Survey Administration and Data Collection

While there are special cases in which it may be easier or more appropriate to administer your survey on paper, most surveys these days are administered *electronically*. This means that participants receive an email invitation or click directly on a link that takes them to an electronic version of the survey, and after they complete the survey, the data are automatically recorded and often automatically analyzed by the software program.

Survey software programs

A number of survey programs exist. However, if you plan to conduct a survey that involves members of Bucknell community, we recommend that you use ***a software program for which Bucknell has an institutional license***, such as:

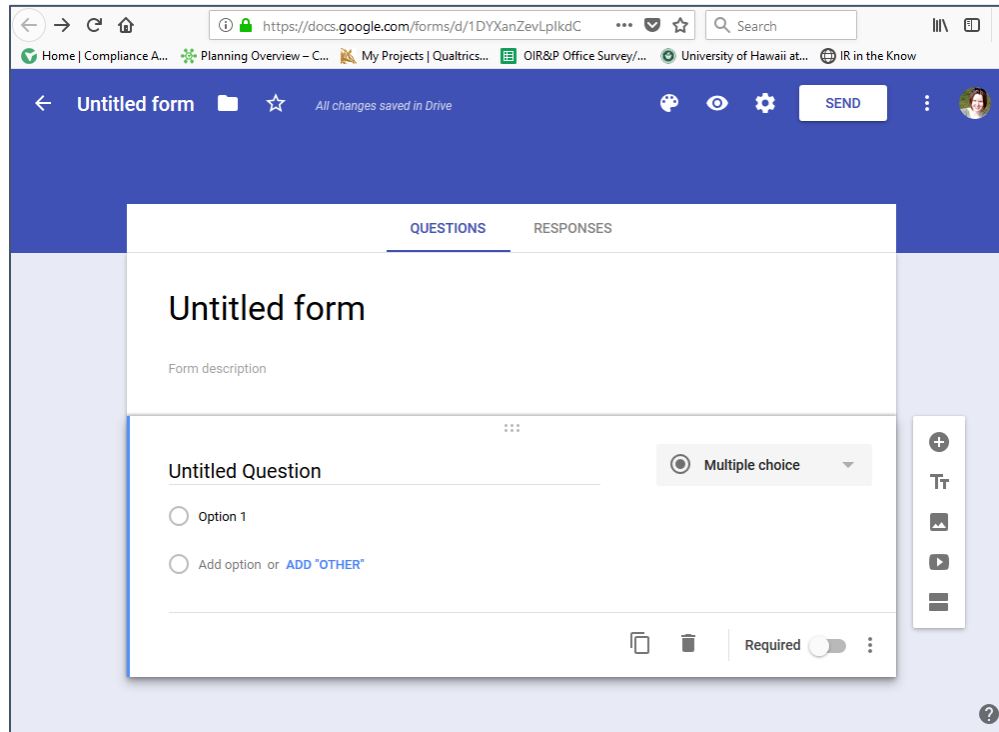
- Qualtrics,
- Google Forms (part of Google Suite),
- Baseline (part of Campus Labs Suite).

[Moodle](#), Bucknell's Learning Management System, offers a Survey feature, which is integrated with the Gradebook (BU login required).

Using a Bucknell-licensed program for your survey will help ensure that both participant information and survey data are protected, and that you can get technical support if needed.

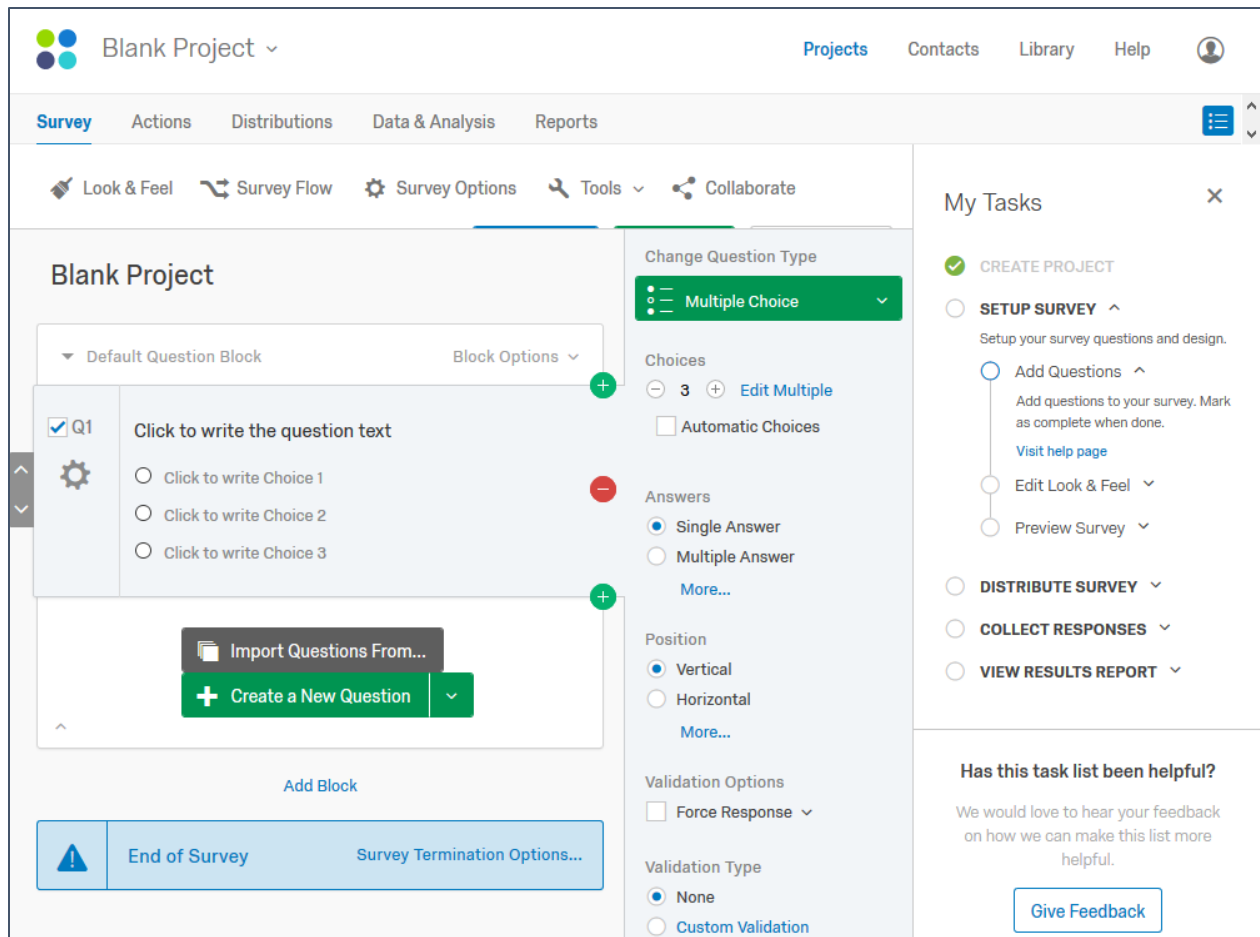
To access **Google Forms**:

- Log into your BMail with your Bucknell ID.
- From your BMail, go to your Google Drive > New > More > Google Forms.
- Build and test your survey questions; send the survey invitation to your participants; check the results in real time; export data files and reports after the survey is completed.



To access **Qualtrics**:

- Log into your BMail with your Bucknell ID.
- Activate your Qualtrics account by searching for Qualtrics via myBucknell. When you click the “Launch Qualtrics Now” link, your account will be created automatically.
- For additional information or assistance, please contact the Tech Desk at 570.577.7777 or techdesk@bucknell.edu.
- Build and test your survey questions (including advanced survey-flow and display-logic options); send the survey invitation and reminders to your participants; check the results in real time; export data files and reports after the survey is completed.



To access **Baseline**:

- *Note that Baseline is intended exclusively for use by Student Affairs departments.*
- Log into your BMail with your Bucknell ID.
- Contact Jennifer Albright, Bucknell’s Campus Labs administrator for Student Affairs, to activate your Baseline account.
- Build and test your survey questions; send the survey invitation to your participants; check the results in real time; export data files and reports after the survey is completed.

Should your survey be anonymous or confidential?

There is no simple answer to this question, but here are some things to consider:

- There are three main (and often interconnected) reasons to make a survey *anonymous*:
 - The survey collects sensitive information;
 - You want to encourage participants to answer honestly;
 - You want to protect the participants' identities.
- In a truly anonymous survey, the responses are permanently disconnected from the participants' names, emails, IDs, or any other personal identifiers. That means that, as the researcher, you only have the data you collected in that one survey, and nothing more; you can *never* go back and link your results to other information about the participants (e.g., their gender, class year, or major), in order to conduct more analyses.
- If you are administering your survey using participants' unique email addresses, then by default the survey is *not* anonymous. There is usually an extra step to make a survey anonymous, e.g., in Qualtrics, you would go to Survey Options > Survey Termination, and select the Anonymize Response option.
- Another option is to keep the participants' responses *confidential*, and to share and report the results only in the aggregate, without identifying individual persons. That option allows you to retain *a linking file* with the participants' names, emails, and/or Bucknell IDs linked with their survey responses (or to research IDs linked to those responses), so that you can conduct additional analyses in the future. For instance, any longitudinal analyses require such a linking file, otherwise the data you collect from a given participant at time 1 cannot be linked to the data from the same participant collected at times 2, 3, and so on. The linking file should be stored in a secure location, password protected, and accessed only by authorized individuals.
- If your survey is a scientific survey intended for publication, and you secured Bucknell IRB's approval for your study, you are bound by whatever you stated in your IRB application and informed consent, e.g., if you told your participants the survey would be anonymous, you should make sure it is.

Protecting the privacy of your participants

Before you collect any information from your participants, it is important that you familiarize yourself with both federal regulations and Bucknell policies regarding privacy protections, including (but not limited to):

- [Family Educational Rights and Privacy Act of 1974 \(FERPA\)](#), a federal law that protects the privacy of student educational records.
- [Health Insurance Portability and Accountability Act of 1996 \(HIPAA\)](#), a federal law that protects the privacy of health records and individually identifiable health-related information.
- [Gramm-Leach-Bliley Act \(GLB\)](#), which safeguards customer financial information.
- [General Data Protection Regulation Compliance](#), which specifies new (as of 2018) requirements for data protection and processing activities for all organizations operating in the European Union (EU), or offering goods or services to individuals in the EU.
- Bucknell's [Confidentiality and Privacy Policy](#) (accessible via myBucknell > Forms and Policies), which outlines the responsibilities of Bucknell employees with regard to data confidentiality and privacy in reference to FERPA, HIPAA, and GLB regulations.
- Bucknell's [Appropriate Use Policy](#) (accessible via myBucknell > Forms and Policies), which regulates the use of computing and networking facilities and defines users' responsibilities with regard to protecting data.

A good rule of thumb: *Handle all files with participant information and survey responses as if they contained your own information and survey responses.*

Survey fatigue and some strategies to combat it (and increase your completion rates)

Bucknell students, faculty, and staff are constantly bombarded with survey invitations, which produces a *survey fatigue*, or a lack of interest and reluctance to participate at all. Some surveys may have a response rate as low as 5% (i.e., you would only get 5 responses out of the 100 people you invited).

Remember that in most cases the people you invite *don't have to* participate—it's completely up to them; and even if they start the survey, they don't have to finish it (especially if your survey falls under the IRB, which takes voluntary consent very seriously and forbids any form of coercion).

Therefore, whatever you can do to *encourage your participants to complete your survey* can have dramatic effects on your response and completion rates. At the very least, you should carefully consider the following:

- Who are your participants, and what is your relationship with them? If the invitation email comes from you, will they recognize your name? If not, it may be beneficial to partner with someone whom they already know and respect, and ask this person to send a *heads-up email* (which you would draft for them), making the participants aware that a survey invitation is coming and explaining the purpose of the survey and why they are asked to participate.

- In fact, we recommend that all invitation and reminder emails you send to participants, as well as the introduction to the survey itself, include ***a brief but compelling explanation of the purpose of the survey*** and why their participation is crucial (even if you repeat the same information).
- If you plan to ***share the results with your participants after the survey***, mention it! It may increase people’s interest and motivation to participate. They are asked to complete surveys all the time, but they rarely see the results.
- ***Timing of the survey*** matters! Check the academic calendar to avoid particularly busy or stressful times such as midterms or final exams. Holidays and times when the university is not in session are also tricky.
 - If you are planning a large survey of Bucknell community, we also ask that you contact Rita Liu in our office ahead of time. We coordinate all large surveys, to help avoid overlap that could confuse participants and hurt completion rates.
- In addition to the heads-up message, and if your budget allows, you could raise awareness of the survey and even build some buzz around it by ***promoting it on campus***. The promotion could include printed flyers, electronic flyers (displayed on the screens in the Library, ELC, and other buildings), social media posts, as well as “ads” about the survey in other campus communications, particularly those that are read by your target population.
- If your budget allows, you could offer a gift card or another award as ***an incentive*** to participate (either to everyone who takes the survey, or they could be entered into a random drawing). Although if the award is their only reason for participating, there are no guarantees that they will finish the survey or give you thoughtful answers.
 - To randomly draw a participant from your sample, assign each participant a number, and then enter the total number into the [Random Number Generator](#); the number drawn will be your winner.
- You may be trying to reach ***specific groups within your target population*** (e.g., all class years, all genders, students with majors across all academic divisions), perhaps because you want to compare their responses. The research term for it is *a stratified sample*; or a *stratified random sample* if participants from each group were chosen at random. If that’s the case, you may have to use tailored recruitment and promotion strategies for different groups—although the survey questions would still be the same.
- If answering your research questions involves statistical analyses of your survey data, you may need to determine the ***minimum sample size*** that gives you a decent shot at finding statistically significant results. Here are two online tools to help you get started:
 - [Sample Size Calculator](#) by Rasoft, Inc.
 - [Sample Size Calculator](#) by Creative Research

Coordination of campus-wide surveys at Bucknell

The OIRP coordinates Bucknell's participation in institutional survey research. Many of our surveys are conducted with the coordination of consortia (e.g. HEDS) on behalf of all member institutions. Consortia surveys allow us to learn a lot about the population being surveyed, and also to compare our findings with those at our peer institution.

Vendor or consortium-coordinated survey instruments often give us the option of adding a few questions of our own to the end of the survey. The final set of questions is determined by the Institutional Research Advisory Group, based on the University's needs and priorities. If you have suggestions for areas to include in our "local" questions for an upcoming survey, please email Rita Liu or Kevork Horissian at the OIRP.

If you are in need of information from one of our regular surveys, please visit our [Survey Research](#) page to find report files as well as survey instruments (Bucknell ID login required). The page includes several well-known national surveys, including the National Survey of Student Engagement (NSSE), the Beginning College Survey of Student Engagement (BCSSE) and the College Senior Survey (CSS).

Stage 4. Data Analysis and Interpretation

Broadly speaking, data analyses are different ways of querying the data in order to answer your initial research questions, as well as any new or follow-up research questions that emerge.

The data analyses you conduct on your survey data will depend on several factors, including:

- Your research questions (*What do you actually want to know?*).
- Types of data you collect (e.g., quantitative or qualitative; if quantitative: categorical, ordinal, interval, or ratio).
- Your sample size and whether your sample contains any subgroups that you want to compare or examine in isolation.
- Goals of the study (e.g., publication in a peer-reviewed journal vs. use for assessment, planning, and institutional improvement).
- The audience for any reports or presentations you plan to produce.

Three good rules of thumb:

- ***Use the simplest analysis and simplest statistics that will answer your question. More complex is not always better!***
- ***Different statistics will give you different information, so be intentional about which ones you use and why.***
- ***For quantitative data, it's always a good idea to look at the distribution of the scores (instead of relying only on summary statistics such as mean or median values, which hide a lot of potentially useful and important information).***

The table below lists three main types of variables (nominal, ordinal, scale), as well as their characteristics and which summary statistics are appropriate to use.

	Nominal/ Categorical ("name only") • Gender • Race • Major	Ordinal ("in a set order") • Satisfaction ratings • Rank	Scale ("true numbers") • Age • Height • GPA
The order of values is known		✓	✓
Frequency distribution (=counts of response options)	✓	✓	✓
Mode (=most frequent value)	✓	✓	✓
Median (=value in the middle of an ordered list)		✓	✓
Mean (=mathematical average)			✓
Can quantify the difference between any values			✓
Can add or subtract values			✓

Summarizing your results in graphs and tables

Graphs and tables with data summaries are essential when communicating the results to an audience via reports and presentations—but they can be just as helpful to the researcher going over the data and trying to interpret and understand the results.

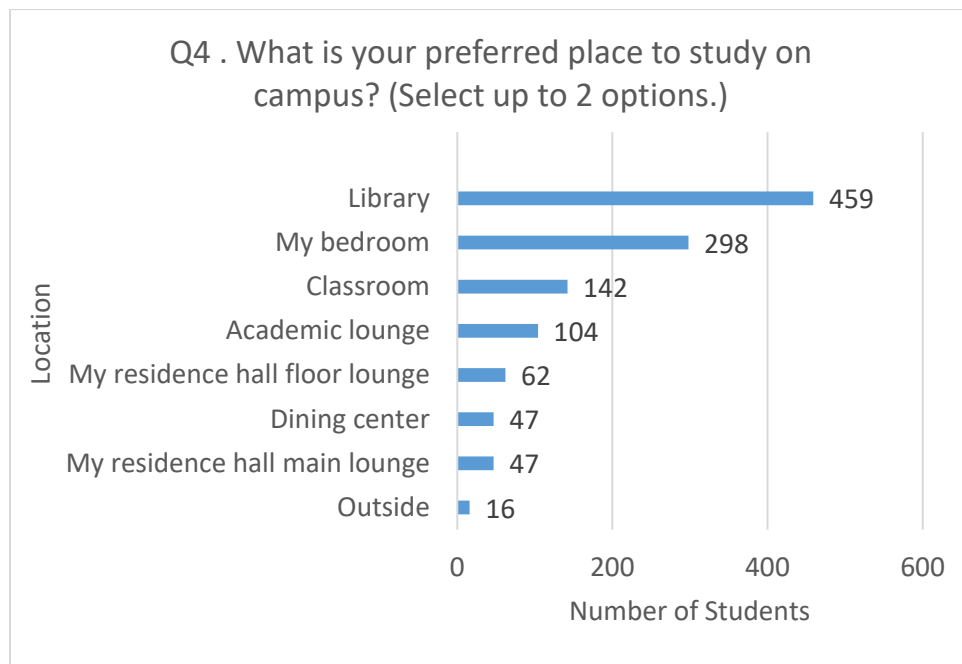
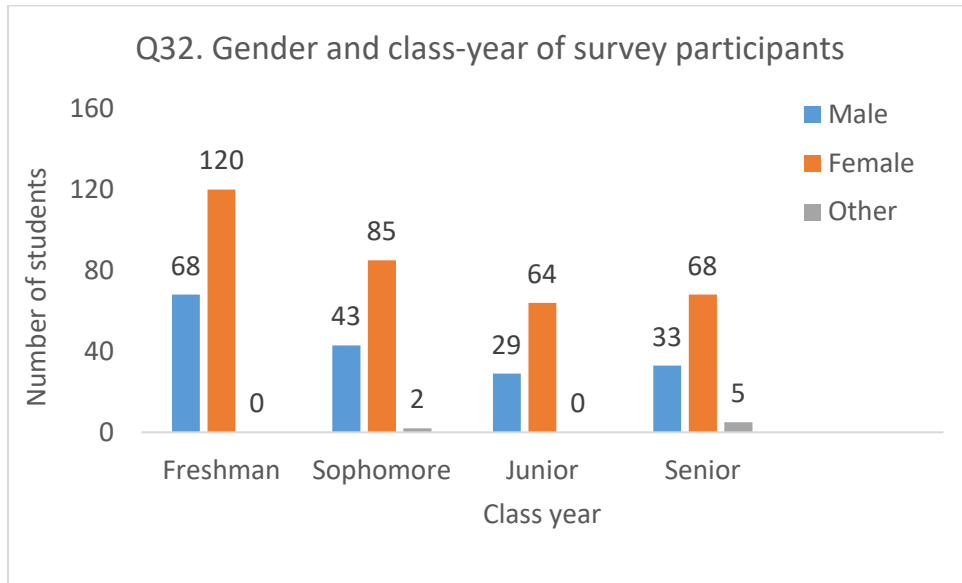
Graphs will be most informative if:

- each graph has a descriptive and unique title (so as not to be confused with other graphs)
- all axes are clearly labelled (including units of measurement)
- all categories are clearly labelled
- numerical values are displayed (if space allows)

Below are examples of four commonly used types of graphs, but a variety of other ways to graphically represent data exist as well.

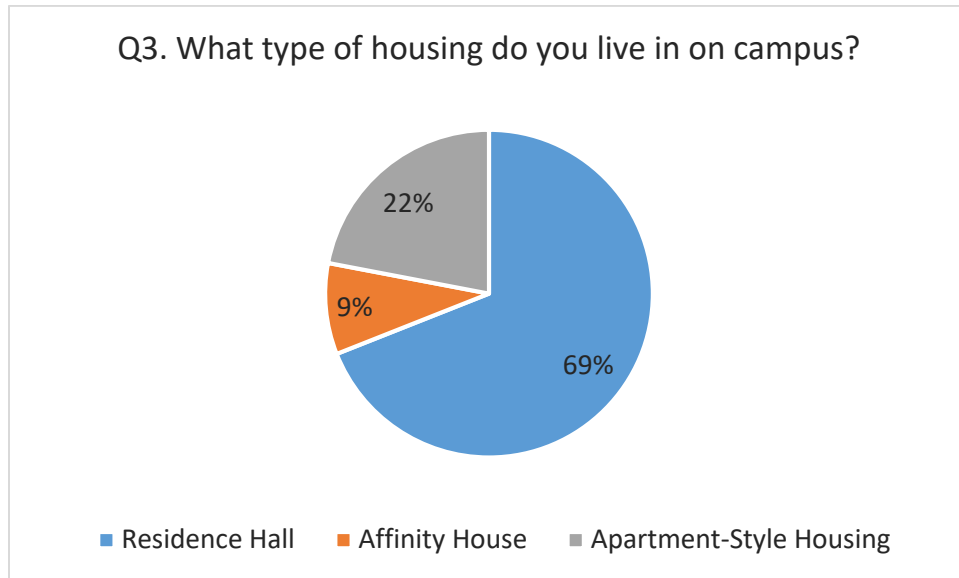
Bar graphs

- Used to examine the responses of one group, or to compare the responses of multiple groups side by side (e.g., students from different colleges or class years), *at a specific time point*
- **Vertical bars** work well for short category labels; **horizontal bars** work well for longer category labels or to show cumulative percentages



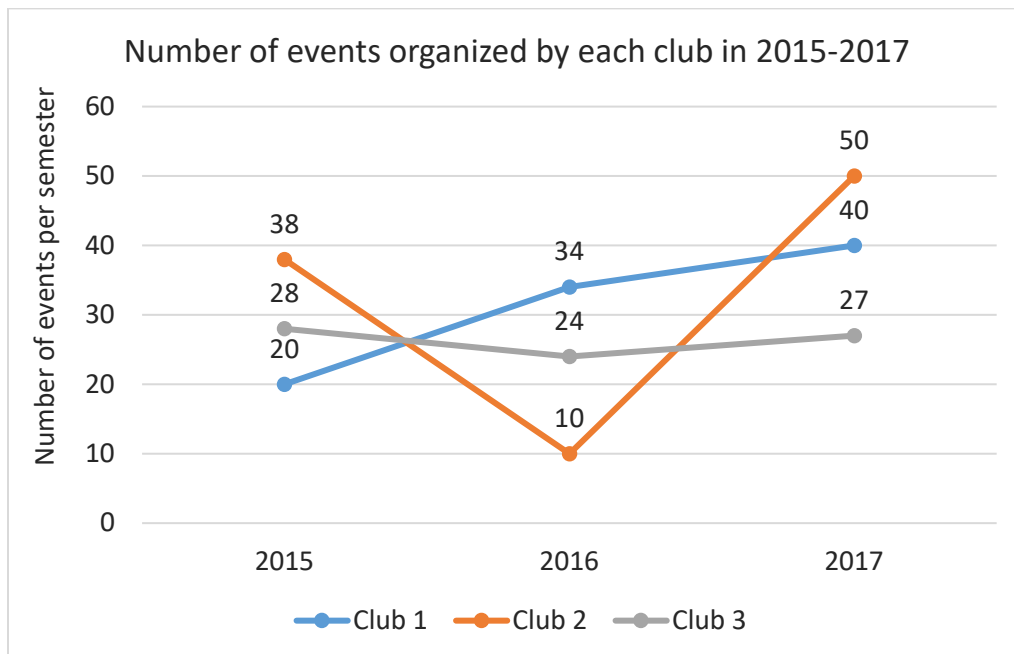
Pie charts

- Used to examine what percentages of total participants gave specific responses



Line graphs

- Used to examine how the responses of one group *changed over time* (one line), or to compare multiple groups (multiple lines)



Importance of record keeping

Whether your survey project is meant for publication or for assessment and planning in your department, it's a good idea to keep all the files and documents related to the project in one place for easy reference. Here is one structure you could use to organize your folders:

- Survey Administration
 - IRB proposal and informed consent document, if applicable
 - The final version of the survey instrument, including the codes assigned to all response options (especially if you reversed the codes for analyses!)
 - Copies of invitation emails, reminder emails, and any promotional materials
 - Your participant contact list (*Note that the contact list may have to be stored securely and separately from the survey data, in order to protect the privacy of your participants' information and confidentiality of their responses.*)
- Data Files
 - Raw data files (excel, SPSS, Word), prior to any data transformations or analyses
 - This includes all quantitative data and qualitative data you collected in the survey
- Data Analyses
 - Your master data-analysis files, labeled with date
 - All other data-analysis files, labeled with dates, including tables and graphs for quantitative data, a list and descriptions of themes used in analyzing the narrative responses (qualitative data), etc.
 - Your notes documenting your analysis process in relation to your initial research questions
- Reports and Presentations
 - All the report and presentation files, labeled with dates
 - Research articles and other publications you used when researching and designing your survey project and/or you plan to cite in your final report or presentation

Stage 5. Sharing and Using the Survey Results

You have collected and analyzed your survey data—now it's time to report on your results! Sharing the survey results—in the form of a written report, an oral presentation, or perhaps an interactive data dashboard—is a crucial last step in any survey project. This is true whether your survey is a scientific survey aimed at a publication in a peer-reviewed journal, or an institutional survey to inform planning and decision-making in your department.

What makes a good report? The answer will depend on the type and purpose of the survey, the topic, the audience. But here are some general guidelines when drafting your report:

- ***Go back to your initial research questions—and now answer them with data.*** If your survey was carefully designed, you should be able to point to a specific survey question and to a specific result, for each of your research questions.

- **For each research question, clearly state the answer (i.e., interpret the result).** Include a table or graph with the relevant result to illustrate. The interpretation of results may be obvious to you, since you've spent a lot of time working with the data and thinking about the results, but it will be less obvious to someone reading or hearing about the project for the first time. Make it easy for them to understand it.
- **Consider your audience!** Structure the report or presentation in such a way that helps your audience understand the purpose of your survey, the methods you used, and finally your results and what they mean. How much prior knowledge on the topic do they have? Are they familiar with the methods, or should you explain them? How will they react to the results, and how can you best prepare them?
- **Consider different report formats for different audiences.** For example, a snapshot of key survey results could be shared with students via social media or printed posters, while a full report could be housed on a protected website for higher administration to review. You need to determine how and with whom each report format would be shared.
- **Think of your report or presentation as a story you are telling about your survey project and your results.** In which order should you present the results so they make the most sense and the story flows logically? Do you need to, and have enough time to, present all the results—or is it better to focus on a few most important ones?
- **Less is (almost always) more.** This is especially true for oral presentations, in which the audience has to quickly grasp new information on each slide while also holding some general information about the project in their mind. Showing them 20 consecutive data tables or graphs will probably only confuse them. Focus on the most important results, and explain each result carefully before you move on to the next one. Pausing for a moment, or asking the audience if they have any questions, is a good idea too. Your audience will not memorize 20 slides full of data—but they will remember a few key results if you spend enough time on them.
- For institutional surveys, in addition to a full report with all important results, you may want to prepare a 4-page **executive summary** of the report, as well as **shorter reports focused on specific topics** as needed (e.g., for a department meeting on a specific issue, or in response to a request for a specific committee). A short report body with detailed information in appendices is also a good practice.

Other information to include in the reports and presentations on your survey project:

- IRB approval (if applicable)
- Recruitment and distribution method (e.g., email invitations sent to all students who live in campus housing)
- Response rate (out of the students invited to participate, what percentage responded?) and completion rate (what percent completed the survey?)
- Final sample size (number of participants who completed the survey), together with breakdown by category relevant to your results (e.g., gender, class year, college)
- A copy of the final survey instrument (in an appendix)

Further Reading

Suskie, L.A. *Questionnaire Survey Research: What Works* (1996). Assn. for Institutional Research; 2nd edition.

Fowler, F. J. *Survey Research Methods* (2009). SAGE Publications; 4th edition.

Saldana J., and Omasta, M. *Qualitative Research: Analyzing Life* (2018). SAGE Publications.

Online Training Resources

Bucknell has an institutional license to LinkedIn Learning ([Lynda.com](https://www.linkedin.com/learning)), a searchable online learning platform with a focus on adult learner and professional development (BU login required). Here are some courses relevant to different aspects of survey research:

- [Google Forms Essential Training](#) (30 minutes)
- [Excel Statistics Essential Training 1](#) (3 hours 45 minutes)
- [Excel 2013: Working with Charts and Graphs](#) (1 hour 30 minutes)
- [SPSS for Academic Research](#) (2 hours 40 minutes)
- [Academic Research Foundations: Quantitative](#) (1 hour 40 minutes)
- [NVivo 2018 Essential Training](#) (1 hour 23 minutes)