

Faculty Toolkit for Student Success in Undergraduate Research



**KENNESAW STATE
UNIVERSITY**

NORMAN J. RADOW COLLEGE OF
HUMANITIES AND SOCIAL SCIENCES

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How do I set goals for conducting research with students?

- What are the outcomes you hope to achieve by conducting research with students?
- How do your goals align with student goals and outcomes?
- How does my research project help students to attain their goals?

Recommendations:

- Take the time to write down your own goals: why are you choosing to incorporate undergraduate research? What do you hope to achieve?
 - Some recommendations: to enhance my course(s); to provide a high-impact learning experience for students; to gather data to support my disciplinary research goals; to conduct a scholarship of teaching and learning (SoTL) study; etc.
- If you are embedding research within a course, set specific course-related goals for moving forward and develop a plan to incorporate the project within the structure of the course.
- Students may be apprehensive about conducting research. Foster a growth mindset by [communicating the idea that students can improve their abilities through practice](#). Consider scaffolded activities that build a larger product at the end.
- Tell students up front what they will gain from participating in research – make it specific and concrete and include how the knowledge and skills gained can help them in the future.

Sample Resources for General Goal Setting and Planning:

- [Goal Setting](#) worksheet
- [Goal Setting](#) assessment
- [Setting SMARTR Goals](#) worksheet
- [Project Goals and Objectives](#) template

Sample Resources for Undergraduate Research:

- [Student resources for goal setting](#) in research
- [The SURE \(Specialized Undergraduate Research Experience\) Workbook](#) (note: link requires KSU library access)
- [Undergraduate Research](#) definition and taxonomy for KSU

References:

- ◆ Bowman, M. H., & Stage, F. K. (2002). [Personalizing the goals of undergraduate research](#). *Journal of College Science Teaching*, 32(2), 120.
- ◆ Cooper, K. M., Soneral, P. A. G., & Brownell, S. E. (2017). [Define Your Goals Before You Design a CURE: A Call to Use Backward Design in Planning Course-Based Undergraduate Research Experiences](#). *Journal of Microbiology & Biology Education*, 18(2), 1-7.
- ◆ Colbert-White, E., & Simpson, E. (2017). [A Workbook for Scaffolding Mentored Undergraduate Research Experiences in the Social and Behavioral](#)

[Sciences](#). *International Journal of Teaching & Learning in Higher Education*, 29(2), 309–380.

- ◆ Taylor W. Acee (2023). [Value-Reappraisal and Goal-Setting Intervention Effects on Attitudes and Performance in College Statistics](#). *The Journal of Experimental Education*, 91(2), 298-316.
- ◆ Ali, L. (2014). [Improving Students' Writing Abilities through Specific Goal Setting and Text-Based Approach](#). *Pakistan Business Review*, 16(2), 377–395.

How do I identify a research paradigm and conceptual/theoretical framework?

- Look back to your goals – what are your broad theoretical (“big T”) and specific research (“little r”) question(s) that you will answer to achieve these goals?
- What research paradigm (if any) is your work associated with?
- What theoretical paradigm (if any) is your work associated with?

Recommendations:

- What type of research are you conducting (qualitative vs. quantitative vs. mixed methods)? What specific methodology have others used within those categories? If you are new to research or have taken an extended break from intensive research, you may want to revisit basic methodological protocols.
- Consider that if you are conducting a SoTL project to study your work with students, this is in and of itself a separate study. Even if your primary research does not include human subjects, this study includes its own teaching and learning aspects that are valuable research in and of themselves.
- Develop at least one overarching theoretical question that drives your research project – your “big T”.
 - Develop one or more specific research question(s) (“little r”) that are associated with the bigger theoretical question.
 - Think about funneling down from the larger topic to a number of smaller questions that can build on each other – this can increase the efficiency of your time each semester.
- Develop a plan to tell this information to students in an approachable way – how can you translate larger theoretical paradigms to undergraduate students? How does the theory intersect with your course content (if applicable)?

Sample Resources:

- [How to choose your theoretical or conceptual framework](#) overview
- [Conceptual & theoretical frameworks overview](#) Library Guide
- [Qualitative Vs Quantitative Research Methods & Data Analysis](#) overview
- [SoTL research basics](#) from Columbia University
- Video by University of Utah Professor on [Translating Your Research to a General Audience](#)
- [Examples of SoTL research questions](#) and other resources for SoTL

References:

- ◆ Imenda, S. (2014). [Is there a conceptual difference between theoretical and conceptual frameworks.](#) *Journal of Social Sciences*, 38(2), 185-195.
- ◆ Mackenzie, N., & Knipe, S. (2006). [Research dilemmas: Paradigms, methods and methodology.](#) *Issues in educational research*, 16(2), 193-205.

- ◆ Potter, M. K., & Wuetherick, B. (2015). [Who is represented in the teaching commons?: SoTL through the lenses of the arts and humanities](#). *Canadian Journal for the Scholarship of Teaching and Learning*, 6(2), 2.
- ◆ Tonette S. Rocco and Maria S. Plakhotnik, [Literature Reviews, Conceptual Frameworks, and Theoretical Frameworks: Terms, Functions, and Distinctions](#). *Human Resource Development Review*, Volume 8, Issue 1. <https://doi.org/10.1177/15344843093326>.
- ◆ Van der Waldt, Gerrit. "[Constructing conceptual frameworks in social science research](#)." *TD: The Journal for Transdisciplinary Research in Southern Africa* 16.1 (2020): 1-9.
- ◆ Miller-Young, Janice, and Michelle Yeo. 2015. "[Conceptualizing and Communicating SoTL: A Framework for the Field](#)". *Teaching and Learning Inquiry* 3 (2):37-53.

Who should be part of my research team?

- Look back to your goals – how large of a project are you considering, and do you need faculty collaborators?
- Do you need perspectives from other disciplines?
- Do you need multiple forms of data to be collected?

Recommendations:

- If you are conducting a small project related to only one course or narrow research topic, the work may be more suited as an individual project.
- If you are planning a multi-semester project with multiple components, it may be enhanced with a team of faculty involved.
- What types of data do you plan to collect? If you are considering multiple forms (i.e., survey data and observational data; archival research and focus groups), forming a team of faculty can save you time and energy.
- What is your overarching research topic? What other disciplinary perspectives could provide valuable input on the topic? Look for overlaps in complementary disciplines.
- If you partner with other faculty, take time at the outset and planning stage to discuss working styles, plans for student involvement, data “ownership”, and other relevant aspects of working collaboratively.

Sample Resources:

- [IUPUI Assessment Institute 2020 Workshop](#) on forming interdisciplinary teams.
- Tips on [Making the Most of Student Research Teams](#)
- [AACU Value rubric](#) for teamwork
- University of Iowa [Group Work Self-Reflection & Evaluation](#)
- Carnegie Mellon [Group Work Resources](#)
- [Data Collection Methods](#) and a [Sample Data Collection Plan](#) for students

References:

- ◆ Lyall, C., & Meagher, L. (2007). [A short guide to building and managing interdisciplinary research teams](#). *ISSTI Briefing Note*, (3), 1-4.
- ◆ Moirano, R., Sánchez, M. A., & Štěpánek, L. (2020). [Creative interdisciplinary collaboration: A systematic literature review](#). *Thinking Skills and Creativity*, 35, 100626.
- ◆ Aaron, J. R., McDowell, W. C., & Herdman, A. O. (2014). [The effects of a team charter on student team behaviors](#). *Journal of Education for Business*, 89(2), 90-97.
- ◆ Anson, R., & Goodman, J. A. (2014). [A peer assessment system to improve student team experiences](#). *Journal of Education for Business*, 89(1), 27-34.

How do I develop an undergraduate research project that incorporates high impact practices?

- What are the essential elements of High-Impact Practices?
- How does my research project align with these elements?
- Do you intend to collect data for a Scholarship of Teaching and Learning (SoTL) project as part of this undergraduate research experience?

Recommendations:

- Take the time to work through the list of eight [essential elements of HIPs](#). Consider to what degree your project aligns with them. When possible, make small changes to increase the impact of your project.
- Consider other data that may be needed from students to measure the impact of the experience. For assessment of how “high impact” your experience is, consider using an established taxonomy to assess the impact of your undergraduate research experience as a HIP (KSU’s and several others linked below).
- Students should be asked to provide feedback related to their experience in the project, both related to the elements of HIPs and to the comparison between the research experience and a typical classroom one.
- If you plan to publish student data, be sure to seek out IRB approval prior to the start of your project.

Sample Resources:

- [Guide to HIPs eight elements](#)
- [List of eight HIPs elements](#)
- [Council on Undergraduate Research](#) mentor resources
- Jillian Kinzie’s [HIP Quality Project](#)
- University of Oregon [Assessment of Undergraduate Research Resources](#)
- Taxonomies available online that identify the impact of HIPs using the eight elements:
 - [Tennessee Board of Regents: High Impact Practices](#)
 - [Indiana University: High Impact Experiences](#)
 - [Weber State University: HIEE Taxonomy](#)
 - [University of North Dakota: High Impact Practices](#)
 - [Pikes Peak State College: HIPs](#)
 - [Kennesaw State University: Engagement](#)

References:

- ◆ Lopatto, D. (2010). [Undergraduate research as a high-impact student experience](#). *AAC&U Peer Review*, 12, 27–30.
- ◆ Kuh, G. D., & O'Donnell, K. (2013). [Ensuring Quality and Taking High-Impact Practices to Scale](#). *Peer Review*, 15(2), 32.
- ◆ Fischer, A. E., Immel, K. R., Wilkum, K., & Lee, L. (2021). [A Taxonomy for Developing Undergraduate Research Experiences as High-Impact Practices](#). *Journal of the Scholarship of Teaching and Learning*, 21(1), 84-106.

- ◆ Kuh, G. D., & Kinzie, J. (2018, May 1). [What really makes a 'high impact' practice high impact](#). Inside Higher Ed.

What are the major planning tasks I need to complete prior to conducting research with students?

- Will you embed a research project within a course or recruit students to participate outside of class?
- If you plan on a Course-based Undergraduate Research Experience (CURE), what courses are you teaching now or will be in the future that are appropriate for undergraduate research?
- If you plan on a stand-alone project, how will you recruit and retain students?
- How can you scaffold assignments throughout the experience to build toward a final product?

Recommendations:

- Consider backward design to ensure you have appropriate time for each benchmark/assignment.
- Plan your syllabus and course curriculum well ahead of time and if possible, include extra time to account for unexpected obstacles along the way (especially if this is your first time facilitating undergraduate research).
- Ensure that students receive adequate feedback throughout the process (not just at the end) so that they can correct mistakes and keep the project on track.
- Include low-stakes opportunities to practice skills early in the project that will be higher-stakes later to identify problems and correct.

Sample Resources:

- [IUPUI Backward Design](#) for courses
- [Dee Fink's course design](#): A Self-Directed Guide to Designing Courses for Significant Learning
- Learn more about [CUREs](#)
- [Designing a CURE](#)
- [Concrete Strategies for Frequent, Low-Stakes Assessments/Practice](#) from Carnegie Mellon

References:

- ◆ Sand, A. K. (n.d.). [CURE-ing the Opportunity Gap in Undergraduate Research](#). DigitalCommons@USU.
- ◆ Evans, S. Z., & Evans, J. (2021). [Undergraduate Research Embedded across Course Levels and Types through Scaffolded Projects](#). *Journal of the Scholarship of Teaching and Learning*, 21(1), 152-170.
- ◆ Wiggins, G., & McTighe, J. (2005). [Understanding by Design](#). Alexandria: Association for Supervision and Curriculum Development.
- ◆ Cooper, K. M., Soneral, P. A., & Brownell, S. E. (2017). [Define your goals before you design a CURE: a call to use backward design in planning course-based undergraduate research experiences](#). *Journal of microbiology & biology education*, 18(2), 18-2.

How can I identify and remove obstacles for my students to participate in research?

- What are the major barriers that inhibit students from participating in research?
- How can I provide more equitable access to research opportunities for students?

Recommendations:

- Remember that students may have other responsibilities that will inhibit their ability to engage in research activities outside of class time. If you plan to require students to collect data or complete other tasks at a different time, plan for how you will deal with these barriers.
- Consider allowing multiple ways to complete tasks, and/or division of labor across a student team to ensure that all can participate in a way that fits their unique circumstances.
- Consider using recruitment strategies focused on increasing diversity. Some Recommendations include:
 - use of more diverse recruitment advertisement
 - use of language that will not dissuade students of various backgrounds (i.e., mention flexibility if possible)
 - proactive recruitment that targets strong minority students (by both faculty and students)
 - recruit broadly – less requirements will ensure a more diverse pool.
 - consider using work study students if possible.
 - make application easy to complete and understand.
 - emphasize enthusiasm over experience (references for these strategies linked below)

Sample Resources:

- [Reflective Instrument for Faculty](#): A Framework for Inclusive Pedagogy
- [Equity Minded Strategies for Learning and Engagement](#) in the Remote Environment
- [Promoting DEI in Lab and Field](#) Resources for Research
- Michigan State University [Examples of Diversity, Equity, & Inclusion Activities](#) in Research

References:

- ◆ Finley, A. & T. McNair. (2013). [Assessing underserved students' engagement in high-impact practices](#). Association of American Colleges and Universities American Association of Colleges and Universities.
- ◆ Ahmad A.S., Sabat, I., Trump-Steele, R. and King, E. (2019). [Evidence-Based Strategies for Improving Diversity and Inclusion in Undergraduate Research Labs](#). *Frontiers in Psychology*. 10:1305. doi:10.3389/fpsyg.2019.01305
- ◆ Nonnemacher, J., & Sokhey, S. W. (2022). [Learning by Doing: Using an Undergraduate Research Lab to Promote Diversity and Inclusion](#). *PS: Political Science & Politics*, 55(2), 413-418.

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- ◆ Bhattacharyya, P., & Chan, C. W. (2021). [Can Undergraduate Research Participation Reduce the Equity Gap?](#). Journal of the Scholarship of Teaching and Learning, 21(1).
- ◆ Haeger, H., White, C., Martinez, S., & Velasquez, S. (2021). [Creating More Inclusive Research Environments for Undergraduates](#). Journal of the Scholarship of Teaching and Learning, 21(1).
- ◆ Kinzie, J., & Manke, B. (2022). [Getting beyond the high-impact practice \(HIPs\) checklist: Assessing and designing for quality and equity](#). IUScholarWorks Repository.

How can research expand my students' breadth of knowledge and better support their attainment of learning outcomes?

- How can research help my students acquire critical and creative thinking skills?
- Will engaging in undergraduate research enhance what my students learn in my course(s)?

Recommendations:

- Well-designed undergraduate research can result in greater critical thinking skills, independent thought, and creativity. To develop these skills, students need to be given some autonomy during the research process.
- Consider leaving extra time at the beginning stages of the project to allow students to brainstorm and think creatively about the problem.
- Be flexible (when possible) so that if students have an idea that will generate valuable information but is outside your original plan, you can pivot.
- Undergraduate research can enhance learning gains within a course, but only if the content and the research topic are linked. You may need to do this very explicitly, at least at first.
 - Consider a variety of ways to do this – first, you may want to connect all the dots for students clearly. Then, you can move on to class discussions and/or group work that requires students to bridge the research they are conducting and the textbook/lecture content.

Sample Resources:

- Grinnell College [Pre and Post Test Assessments for CUREs](#)
- Ideas for [Assessment and Evaluation of Student Learning in Research](#)
- The [Benefits of Engaging in Research](#) for students.
- MIT's guide to [Help Students Retain, Organize and Integrate Knowledge](#)
- Ideas for [Connecting Course Content to Research Experiences](#)

References:

- ◆ Parker, J. (2018). [Undergraduate research, learning gain and equity: the impact of final year research projects](#). *Higher Education Pedagogies*, 3(1), 145-157.
- ◆ Stanford, J. S., Rocheleau, S. E., Smith, K. P., & Mohan, J. (2017). [Early undergraduate research experiences lead to similar learning gains for STEM and Non-STEM undergraduates](#). *Studies in Higher Education*, 42(1), 115-129.
- ◆ Anna Wilson, Susan Howitt & Denise Higgins (2016). [A fundamental misalignment: intended learning and assessment practices in undergraduate science research projects](#). *Assessment & Evaluation in Higher Education*, 41:6, 869-884.
- ◆ Lilia Mantai, Christopher Swain, Margaret Bearman & Angela Brew (2023). [Assessment of student learning in undergraduate research engagement](#). *Higher Education Research & Development*.
- ◆ Jenny O, Jennifer J. Sherwood & Vanessa R. Yingling (2017). [Undergraduate Research and Service-Learning Programs in a Kinesiology Program at a Teaching University](#). *Quest*, 69:3, 331-347.

- ◆ Helen Walkington, Kearsley A. Stewart, Eric E. Hall, Elizabeth Ackley & Jenny Olin Shanahan (2020). [Salient practices of award-winning undergraduate research mentors – balancing freedom and control to achieve excellence.](#) *Studies in Higher Education*, 45:7, 1519-1532.
- ◆ Maureen Snow Andrade (2018). [Learning gain – A U.S. perspective.](#) *Higher Education Pedagogies*, 3:1, 46-48.
- ◆ Maltese, A., Harsh, J., & Jung, E. (2017). [Evaluating undergraduate research experiences—development of a self-report tool.](#) *Education Sciences*, 7(4), 87.

What types of introductory research experiences can be embedded in the classroom?

- What research options, besides a course embedded undergraduate research (CURE), are appropriate for including in the classroom?
- What are the most important research skills for students to develop?
- How do I develop students' data literacy skills?

Recommendations:

- Students come to college with increasingly more and more college credit, but don't always get training or education around these topics and often cannot apply critical thinking skills to interpretation of data in the same way they may do so for standardized tests.
- Think about the classes that you teach that could potentially incorporate data literacy competencies. Are you explicit in your communication with students about these competencies? When you think about your curriculum, are you expecting research methods to do these things? What is the value of introducing them at earlier levels?
- CUREs require advance planning and preparation for the best outcomes for you and your students (see prior section in this toolkit on planning). This may be less appropriate/feasible for introductory level classes.
- A good introduction can focus on aspects of the traditional research presentations or publications, such as an abstract, literature review, finding a research gap, designing a research study, creating an annotated bibliography,

Sample Resources:

- [Scholarship and Practice of Undergraduate Research](#) journal
- [Designing a CURE](#) for your classroom
- Undergraduate Research Experience: [A Roadmap to Guide Your Journey](#)
- Having students [Conduct a Literature Review](#) a step-by-step process.
- Assign students to identify a research gap in a field of study [after reviewing this video on research gaps](#)
- Have students design a study as an assignment: [Psychology example](#); [Political Science example](#); [General example](#); or watch this [Video on how to create a research design](#) assignment
- Research skill developing [Assignment Ideas](#)
- Designing assignments to [Develop Information Literacy Skills](#)

References:

- ◆ Ridsdale, C., Rothwell, J., Smit, M., Ali-Hassan, H., Bliemel, M., Irvine, D., & Wuetherick, B. (2015). [Strategies and best practices for data literacy education: Knowledge synthesis report.](#)
- ◆ Kortz, K. M., & Van Der Hoeven Kraft, K. J. (2016). [Geoscience education research project: Student benefits and effective design of a course-based](#)

- [undergraduate research experience](#). *Journal of Geoscience Education*, 64(1), 24-36.
- ◆ Lipika Deka, Peri Shereen & Jeffrey Wand (2023). [A Course-Based Undergraduate Research Experience \(CURE\) Pathway Model in Mathematics](#). *PRIMUS*, 33:1, 65-83.
 - ◆ Alissa Ruth, Alexandra Brewis & Cindi SturtzSreetharan (2021). [Effectiveness of social science research opportunities: a study of course-based undergraduate research experiences \(CUREs\)](#). *Teaching in Higher Education*.
 - ◆ Jason Parsley & Joseph Rusinko (2017). [CRP: Collaborative Research Project \(A Mathematical Research Experience for Undergraduates\)](#). *PRIMUS*, 27:4-5, 442-450.
 - ◆ Angela Antonou, Sara Liesman & Megan Powell (2022). [Impacts of a Cross-Institutional Undergraduate Research Experience Workshop on Student Understanding of and Self-Efficacy for Research](#). *PRIMUS*, 32:3, 432-445

What types of advanced research experiences can be embedded in the classroom?

- What are best practices for course-embedded undergraduate research (CURE)?
- What are the most important advanced research skills for students to develop?

Recommendations:

- Consider what types of research skills are most appropriate given your project and scope:
 - Data collection, coding, and/or analysis (qualitative or quantitative)
 - Research design
 - Researching and writing a literature review
 - Synthesis of findings
 - Research writing – are there other parts of the research process that students can contribute writing to? If so, this may require mentoring to teach them how,
- CUREs require advance planning and preparation for the best outcomes for you and your students.
- CUREs typically involve a topic that is in alignment with the course learning outcomes and course topics.
- Consider the preparation level of students when deciding on research activities. Your choice of research activity should align with appropriate expectations – i.e., with first year students in an introductory course, you may want to consider an assignment like a literature review rather than something more advanced. For upper-level major students, it may be more appropriate to engage in a full research project from start to finish.

Sample Resources:

- [KSU Library Research Guides](#) on writing a literature review and conducting searches for scholarly articles. These can be embedded into a D2L shell.
- [Designing a CURE](#) for the classroom
- Purdue OWL [Writing a Literature Review Resources](#)
- KSU Writing Center [Writing a Literature Review Resources for Instructors](#)
- [Data Collection Methods](#) and a [Sample Data Collection Plan](#) for students
- [Sample Size Calculator](#) (determines the number of individuals needed for statistical power in your analysis)
- A table to assist in [Choosing the Correct Statistical Test in SAS, STATA, SPSS, and R](#)
- Examples of [Qualitative Group and Individual Interview Questions](#)

References:

- ◆ Denney, A. S., & Tewksbury, R. (2013). [How to write a literature review](#). *Journal of criminal justice education*, 24(2), 218-234.
- ◆ Kortz, K. M., & Van Der Hoeven Kraft, K. J. (2016). [Geoscience education research project: Student benefits and effective design of a course-based](#)

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- ◆ Jason Parsley & Joseph Rusinko (2017). [CRP: Collaborative Research Project \(A Mathematical Research Experience for Undergraduates\)](#). *PRIMUS*, 27:4-5, 442-450.
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 - ◆ Katherine McLean, Laura Cruz & Charles Goff (2021). [The “Crime on Campus” Study: Course-Based Undergraduate Research and Student Confidence](#). *Journal of Criminal Justice Education*, 32:2, 216-233.
 - ◆ Jared R. Dmello & Kimberly R. Kras (2021). [Photovoice as a Research Technique for Student Learning and Empowerment: A Case Study from a South Texas Border Town](#). *Journal of Criminal Justice Education*, 32:4, 513-536.
 - ◆ [Concerns, Considerations, and New Ideas for Data Collection and Research in Educational Technology Studies](#) JRTE | Vol. 43, No. 1, pp. 29–52 | ©2010

How do I engage in data collection with students?

- What types of data can (and should) students collect?
- Is there any baseline knowledge or skills that students need to successfully collect this data? If so, how will you teach them those things?
- Do you need students to be IRB certified?

Recommendations:

- You may want to require IRB certification for students (for some amount of class credit, if applicable), regardless of whether it is necessary for the data you plan to collect. They will learn valuable information about research and can put this certification on a resume or CV.
- Remember: Kennesaw State University requires prior review and approval to be obtained from the IRB for all research involving human participants, including plans to gather data from participants:
 - For all graduate and undergraduate student projects conducted outside the classroom, including master's theses and dissertations. Student research involving human subjects cannot be conducted without supervision by a Faculty Advisor as well as IRB oversight.
 - Employing the administration of any substance or stimulus
 - Utilizing an interview, survey, focus group or observation to collect data.
 - That are Elected or Public Officials
 - From the study of de-identified existing data, documents, records, pathological specimens, or diagnostic specimens.
 - Involved in public benefit or service programs.
 - Involved in taste tests and food quality evaluation.
- Consider student background, including but not limited to major, age/class level, research experience, motivation. What can you realistically expect your students to do?
- Think about crowdsourcing data to maximize efficiency – explore free tools such as Google/Microsoft forms, Qualtrics, Survey Monkey, etc.
- What type of data you collect will depend on a variety of factors and should be driven by your research question(s), but also may be dependent on factors related to the students and the course.
- If you are asking students to engage in data collection that supports your personal research agenda, be sure to connect the topical material to their own course work or major, consider how you can get buy-in so that students do not feel as if they are just collecting data “for you”.
- Place safeguards to protect data integrity.

Sample Resources:

- [How to use Google Forms](#) to create online surveys
- [How to use Microsoft Forms](#)
- Purdue OWL [Writing a Literature Review Resources](#)
- Collaborative Institutional Training Initiative ([CITI Online Training and Instructions](#)) (online training program that is the official certification program for

KSU-affiliated personnel with courses that include biomedical research, social and behavioral research, student research, various animal research courses, responsible conduct in research, conflict of interest, IRB or IACUC or IBC member training, as well as biosafety/biosecurity and export controls)

- Guide [for Qualtrics use through KSU](#)
- KSU's [Data Security Protocols](#) and [Use of Student Data Protocols](#)
- UNC Charlotte's student [Data Collection Methods](#)
- Links to a [Data Collection Tools](#)

References:

- ◆ Jameel, B., & Majid, U. (2018). [Research fundamentals: Data collection, data analysis, and ethics](#). *Undergraduate Research in Natural and Clinical Science and Technology Journal*, 2, 1-8.
- ◆ Dehn, P.F. (2010). "[Responsible conduct of research: administrative issues concerning research integrity and compliance](#)." *Council on Undergraduate Research Quarterly*, 30(2): 27-34.
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- ◆ Diaz-Martinez, L. A., Hernandez, A. A., D'Arcy, C. E., Corral, S., Bhatt, J. M., Esparza, D., Rosenberg, M., & Olimpo, J. T. (2021). [Current Approaches for Integrating Responsible and Ethical Conduct of Research \(RECR\) Education into Course-based Undergraduate Research Experiences: A National Assessment](#). *CBE life sciences education*, 20(3), ar38. <https://doi.org/10.1187/cbe.20-08-0179>.
- ◆ Berube, J., & Gendron, Y. (2023). [Developing Ethical Sensitivity in Future Accounting Practitioners: The Case of a Dialogic Learning for Final-Year Undergraduates](#). *Journal of Business Ethics*, 183(3), 763–781.

What needs IRB approval and how can I get it?

- Do you need students to be IRB certified?
- How can students get certified?

Recommendations:

- If you are using Human Subjects in your research (talking to people or gathering information from them in almost any way except pure observation), you most likely need IRB certification for the project and for each individual student that will be working on it.
- Remember: Kennesaw State University requires prior review and approval to be obtained from the IRB for all research involving human participants, including plans to gather data from participants:
 - For all graduate and undergraduate student projects conducted outside the classroom, including master's theses and dissertations. Student research involving human subjects cannot be conducted without supervision by a Faculty Advisor as well as IRB oversight.
 - Employing the administration of any substance or stimulus
 - Utilizing an interview, survey, focus group or observation to collect data.
 - That are Elected or Public Officials
 - From the study of de-identified existing data, documents, records, pathological specimens, or diagnostic specimens.
 - Involved in public benefit or service programs.
 - Involved in taste tests and food quality evaluation.
- You may want to require IRB certification for students (for some amount of class credit, if applicable), regardless of whether it is necessary for the data you plan to collect. They will learn valuable information about research and can put this certification on a resume or CV.
- Even if your research project doesn't require IRB certification, consider submitting an IRB application to study the student experience so that you can write a Scholarship of Teaching and Learning (SoTL) article on undergraduate research. This must be a separate IRB application to collect data from the participating students as the "subjects" of research.

Sample Resources:

- Collaborative Institutional Training Initiative ([CITI Online Training and Instructions](#)) (online training program that is the official certification program for KSU-affiliated personnel with courses that include biomedical research, social and behavioral research, student research, various animal research courses, responsible conduct in research, conflict of interest, IRB or IACUC or IBC member training, as well as biosafety/biosecurity and export controls)
- KSU IRB [homepage](#)
- [Training for IRB certification](#) KSU homepage
- KSU [FAQ about IRB and FERPA](#)
- KSU's [Project Compliance Checklist for New Researchers](#)

- [Does my project need IRB approval?](#) A walkthrough document.
- The [Federal Regulatory Definition of Research](#)
- [Student Researchers Tips](#) related to IRB approval.
- [IRB Guidance for Student Research](#) at KSU

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What are the ethical considerations of student-centered research?

- How can you ensure that students are conducting research ethically?
- How can you ensure that you are utilizing student labor for research ethically?

Recommendations:

- Make sure that you communicate relevant considerations regarding the work they will be doing – are there special considerations around the research subjects? Will students be in possession of data that could be considered sensitive? Ensure that you have communicated clearly the implications of these or other nuances.
- Ensure students are IRB certified before conducting research, if necessary.
- Communicate to students the value of their participation – for the work that you are completing together, but also for their future endeavors. What skills will they gain that will be useful for them? How can they communicate that to potential employers?
- Consider a peer mentor model if possible so that students who have prior experience can help in the communication of these messages.
- When possible, provide opportunities for student-led dissemination of results (even if only partial) to emphasize the value of their participation.

Sample Resources:

- [Council on Undergraduate Research \(CUR\) Code of Ethics](#) for institutions and individuals
- KSU's [Ethics in Undergraduate Research](#)
- [Defining the Role of Authors and Contributors](#) in research
- Research Responsibilities [checklist](#)
- Authorship determination [worksheet and scorecard](#)
- Sample [authorship agreement with publication intent](#)
- How to [recognize potential authorship problems](#) infographic
- Research Dissemination [Rubric](#)
- Research [Dissemination Toolkit](#)
- The [University's Role in the Dissemination of Research and Scholarship](#)

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What role should assessment play in undergraduate research activities?

- How can you assess your students' learning gains?
- What types of assessment are appropriate?
- How can you incorporate reflection in your assessment(s)?

Recommendations:

- Think about three types of assessment: (1) assessment of the course experience (2) of the learning gains; and (3) assessment of the impact of the HIP. You do not necessarily need to assess all three but should decide at the outset what you are going to assess and create your assessment plan with that in mind.
 - Assessments of the course experience tend to ask subjective questions of students about their overall experience and personal development. These are especially important if you plan to produce a SoTL scholarship.
 - Assessments of the learning gains typically measure how well students met course learning outcomes.
 - Consider using an established taxonomy to assess the impact of your undergraduate research experience as a HIP (KSU's linked below, others linked elsewhere in this toolkit).
- Incorporate some type of reflection into your assessment plan. Reflecting on the experience enhances positive outcomes and will also give you rich feedback.

Sample Resources:

- [Evaluation Tools](#) for Undergraduate Research Self-Assessment
- DEAL Critical Reflection [Assignment Sample](#)
- CUR Assessment [Toolkit](#)
- Undergraduate Research Rubric [Template](#)
- Student Assessment of their Learning Gains [Example Questions](#)
- Sample Questions for [Assessment in a Group Discussion](#)

References:

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How do I involve students in the development of research product(s)?

- How can students synthesize data?
- Should I require formal dissemination of research results?
- How can my students disseminate their research product(s)?

Recommendations:

- Consider training students in data analysis/synthesis if appropriate. If you plan to have students use data that was collected as part of the project, they will benefit from conducting analysis.
- Make master copies of any data before sharing with students.
- Consider creating “how-to” tutorials that can be shared with students to illustrate data analysis tasks.
- Use class/project time to walk through how you would approach data analysis and synthesis.
- Use Recommendations of prior work (yours or others) to show the evolution of writing and analysis.
- There are benefits to requiring students to engage in some sort of dissemination of their research product(s). Consider some type of dissemination, even if publishing or attending a conference is not an option.
Ideas for dissemination:
 - Undergraduate only publications
 - Conferences – consider local and regional options; if your work is interdisciplinary, be sure to look at multiple disciplinary options.
 - Host a poster or presentation session during class time and invite colleagues (this can help with structural barriers for students to participate).
 - Develop a print publication that holds all student contributions and distributes it to colleagues.
 - Help students incorporate their work into graduate school applications and/or professional writing.
 - KSU Symposium of Student Scholars

Sample Resources:

- [KSU Symposium of Student Scholars](#) showcase if student scholarship.
- Kennesaw [Journal of Undergraduate Research](#)
- [National Council on Undergraduate Research](#) conference information
- [CUR Guide](#) to Translating Research Skills
- [Posters at the Georgia State Capitol](#) on undergraduate research [sponsored by KSU](#)
- [Creating Effective Poster](#) Presentations
- [Tips on Poster Presentations](#) at Professional Conference
- Oral Presentation [Help](#)
- Free Research Poster PowerPoint [Templates](#)

- A brief list of professional conferences that accept presentations by undergraduates:
 - National Collegiate Honors Council Annual [Conference](#)
 - [Undergraduate Conference](#) on Research and Creative Practice
 - [Popular/American Culture Association](#) in the South
 - American Anthropological Association [Annual Conference](#)
 - [Conference](#) for Undergraduate Research in Communication
 - Undergraduate Communication [Research Conference](#)
 - National Undergraduate [Literature Conference](#)
 - [South Atlantic](#) Modern Language Association
 - Contemporary [Issues and Ethics Conference](#)
 - Phi Alpha Theta [History Honor Society](#) Conference
 - Midwest Political Science Association [Conference](#)
 - Georgia Undergraduate [Research in Psychology Conference](#)
 - Psychology [Undergraduate Research Conference](#)
 - Southeastern Psychological Association [Conference](#)
 - PASSHE Women's Consortium [Annual Conference](#)
 - National Women's Study Association [Conference](#)
 - Southwestern Social Science Association [Conference](#)
- A brief list of undergraduate research journals:
 - [Undergraduate History Journal](#) at Illinois
 - American Journal of [Undergraduate Research](#)
 - CUREJ: College [Undergraduate Research Electronic Journal](#)
 - Hopkins [Undergraduate Research Journal](#)
 - Journal of Undergraduate [International Studies](#)
 - Journal of [Undergraduate Research](#)
 - JUR Press - [Journal of Student Research](#)
 - PURSUE: Undergraduate [Research Journal](#)
 - Reinvention: A Journal of [Undergraduate Research](#)
 - Illumination: The Undergraduate [Journal of Humanities](#)
 - Inquiries Journal, [Social Sciences, Arts, and Humanities](#)
 - Elon Journal of Undergraduate [Research in Communications](#)
 - Learning & Teaching: The International Journal of Higher Education [in the Social Sciences](#)
 - Clio's Scroll: The Berkley [Undergraduate History Journal](#)
 - Columbia [Undergraduate Research Journal](#)
 - History Matters: An [Undergraduate Journal of Historical Research](#) at Appalachian State
 - Inquiries Journal: [Social Sciences, Arts, and Humanities](#)
 - Collision [Literary Magazine](#)
 - Queen City Writers: A [Journal of Undergraduate Writing & Composing](#)
 - Falsafa: [Undergraduate Journal of Philosophy](#)
 - Logos: The Undergraduate [Journal of Philosophy](#)

- American Undergraduate [Journal of Politics and Government](#)
- Chicago [Journal of Foreign Policy](#)
- Columbia University [Journal of Politics and Society](#)
- [Critical Theory and Social Justice](#) Journal of Undergraduate Research
- Critique: A Worldwide Student [Journal of Politics](#)
- UCLA [Undergraduate Psychology Journal](#)
- University of North Carolina [Undergraduate Journal of Psychology](#)
- Undergraduate [Journal of Service Learning and Community-Based Research](#)
- Consilence: The [Journal of Sustainable Development](#)
- Xchanges: An [Interdisciplinary Journal of Technical Communication, Rhetoric, and Writing Across the Curriculum](#)

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How do I determine student publication roles and responsibilities?

- When can (or should) you invite students to be co-authors or co-presenters?
- How can you communicate with students about these opportunities?

Recommendations:

- Communicate clearly to students about opportunities for authorship – if you do not see this as an option, let them know early that it won't be, in conjunction with discussing other benefits they will experience from participating in the research project.
- Think carefully about who to invite as an author and consider the class size and scope of the project.
 - If your class size is large, you may be less likely to ask students to be involved in writing a paper, especially within the confines of one semester/project. If select students want to continue, think about these students who engage in work above and beyond the project for credit.
 - If the project is large in scope/lasts a long time, consider whether student participation in writing is appropriate. They may graduate and move on before manuscripts are written.
- If you invite students to be a part of the publication process, communicate to them clearly what this means and ask for commitment in writing (even just an email) about "terms". Develop a clear and specific timeline for contributions from all authors (including yourself), and consequences if someone does not meet that timeline. This protects everyone on the authorship team from getting stuck because of one member's lack of work.
- If students will be co-authors on publications, consider that you may need to engage in mentoring throughout the writing process beyond the research project itself.

Sample Resources:

- Carnegie Mellon [Tips for Helping Students Become Scholarly Writers](#)
- Virginia Tech [Resources for Collaborative Team Agreements](#)
- [Preempting Discord: Prenuptial Agreements for Scientists](#)
- [Best Practices for Collaborative Research](#)
- Authorship determination [worksheet and scorecard](#)
- Sample [authorship agreement with publication intent](#)
- How to [recognize potential authorship problems](#) infographic
- Research Responsibilities [checklist](#)

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How can I help my students use research skills to prepare for their desired career pathway?

- How can you communicate the transferability of knowledge and skills students will gain from participating in research as an undergraduate?
- How can you help students to communicate this knowledge and skillsets to potential employers?

Recommendations:

- Communicate to students the transferable skills they will learn from participating in research early and often. Include information on what students will do and explain why in the syllabus and assignments.
- Consider all the skills undergraduate research might touch on, including but not limited to data literacy, ethical reasoning, problem solving, critical thinking, written and/or oral communication skills, creativity, teamwork, etc.
- Consider setting aside time in class to assist students with incorporating research skills into their resume or CV and/or brainstorming how they could talk about what they have learned in an interview.
- Bring in someone from Career Services to help translate these skills to other industries if appropriate.
- Design your [undergraduate research experience as a HIP](#).

Sample Resources:

- [PowerPoint presentation](#) on translating research skills to industry
- [CUR Guide](#) to Translating Research Skills
- University of Utah video on [Translating Your Research into a Resume](#)
- [Learning outcomes](#) (second page) for research
- [Attributes Employers Seek](#) on a Resume.
- [Transparency in Learning and Teaching](#) (TILT) approaches can assist in communicating skills in assignments and syllabi
- Research assignment [Rubric](#)
- Designing assignments to [Develop Information Literacy Skills](#)
- [Tips for Adding Research](#) to your Resume

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How do I communicate the benefits of undergraduate research to stakeholders?

- How is participating in undergraduate research different from other learning experiences?
- How can undergraduate research foster independence?
- How can participating in research projects improve my students' communication skills?

Recommendations:

- Participating in undergraduate research is linked with positive outcomes such as increased disciplinary knowledge, greater self-efficacy, confidence, and independence.
- Students who participate in undergraduate research also see improvement in communication skills.
- Students with research experience are better prepared for careers in a variety of industries – see previous section on highlighting those skills.
- Build collaborative research projects in which students can create and edit components of the project interdependently.
- Allow students to choose between assignment options and adapt tasks and problems to their contexts.
- Give students choices when possible – research topics, methodology, dissemination type, etc.
- Solicit feedback through the semester and respond to student input.
- Engage in peer review activities.
- Encourage a growth mindset.

Sample Resources:

- See previous sections on [planning a CURE](#).
- Peer Review Response [form](#)
- Peer Review [worksheet](#)
- Student survey questions that will provide valuable feedback [repository](#)
- Assigning and Managing Collaborative Writing Projects [toolkit](#)
- Fostering Independence [worksheet](#)
- [Quick Tips](#) to Infuse a Growth Mindset in Your Classroom

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