

The Instructor Toolkit

| From Books to Bytes: Navigating the Research Ecosystem |

"From Books to Bytes: Navigating the Research Ecosystem," created by the Libraries at Columbia University, is a set of online resources that define the research cycle, provide you with practical strategies, and guide students through the vast resources available to them at Columbia. The primary audience for this series is Columbia-affiliated students. Faculty, in collaboration with a librarian, could use these learning modules for the courses they teach to help familiarize students with the research ecosystem at Columbia and direct them to useful resources available through the Libraries.

The following guide will provide the steps to collaborate with a librarian, access these learning modules, and utilize instructional strategies and assessment techniques to best present the content in this learning series. The learning modules in this series have been created with accessibility and inclusive teaching principles in mind. For resources on Inclusive Teaching, visit the following link:

<https://ctl.columbia.edu/resources-and-technology/inclusive-teaching-resources/>

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Collaborate with a Librarian

- **Choose from a list of Libraries Subject Specialists or Curators** available to help support your teaching.

Libraries Subject Specialists: <https://bit.ly/LibrariesSubjectSpecialistB2B>

Curators: <https://bit.ly/CuratorsB2B>

- **Make an appointment** to meet with a Libraries subject specialist.
<https://bit.ly/AppointmentB2B>
- **Submit a request** to partner with a librarian or curator on an instructional session.
<https://bit.ly/ConsultationRequestB2B>

- **Visit** ‘Ask a Librarian’ for general questions.

<https://bit.ly/AskALibrarianB2B>

Accessing Course Modules

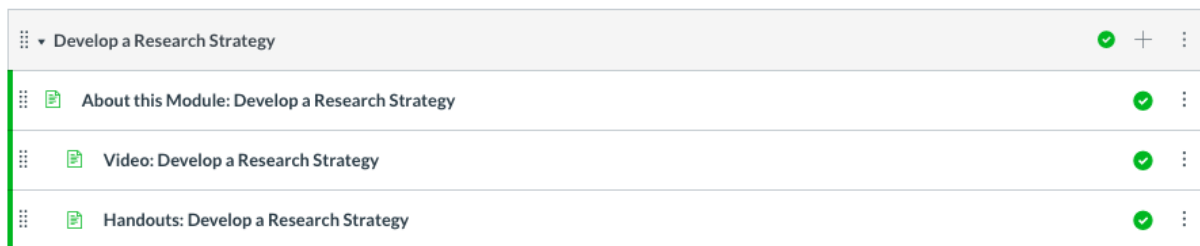


Image 1: A screenshot of the learning modules from the CourseWorks Site.

- All the instructional modules for “From Books to Bytes: Navigating the Research Ecosystem” are available in CourseWorks. Access them here:
<https://courseworks2.columbia.edu/courses/119912>
- To use any of the instructional materials in this series in your course, we recommend importing the specific module into your own CourseWorks course site. Please find the step by step instructions to do so here:

<https://bit.ly/ImportModulesB2B>

Overview | From Books to Bytes: Navigating the Research Ecosystem

This overview provides an outline of the six learning modules in this series with quick links to all of its resources.

Develop a Research Strategy.

Introduce you to the research process by breaking it down into manageable phases.

[Video: Develop a Research Strategy](#) | [Strategy: Compose a Research Question](#) | [Worksheet: Compose a Research Question](#) | [Primary, Secondary and Tertiary Research Resources](#) | [Strategy: Conducting Database Searches](#) | [Worksheet: Building a Complex Search Expression](#)

Recognize Bias.

Practice identifying and countering bias in common research scenarios.

[Video: Recognize Bias](#) | [Case Studies: Research and Bias](#) | [Glossary and References - Recognize Bias](#) | [Bibliography - Recognize Bias](#)

Understand Research Data.

Define, find, and manage research data ethically.

[Video: Understand Research Data](#) | [Institutional Review Board \(IRB\): Getting Started](#) | [Making Data F.A.I.R](#) | [Research Data Management](#) | [Bibliography: Understand Research Data](#)

Archives and Primary Sources.

Leverage Columbia's vast archives and rare primary sources to enrich your research.

[Video: Archives and Primary Sources](#) | [Strategy: Analyze Archival Resources](#) | [Exercise: Archival Source Analysis](#) | [Handling Library and Archival Materials: Best Practices](#)

Cite and Organize Sources.

Apply appropriate citations and citation-management strategies to your research.

[Video: Cite and Organize Sources](#) | [Citation Management with Zotero](#) | [Citation Styles: APA](#) | [Citation Styles: Chicago](#) | [Citation Styles: MLA](#) | [Annotated Bibliography: Description and Examples](#) | [Bibliography: Cite and Organize Sources](#)

Preserve and Share Your Research.

Explore varied approaches to traditional and digital publishing options.

[Video: Preserve and Share Your Research](#) | [Academic Journals: Evaluation, Selection and Author Rights](#) | [Peer Review: Types and Challenges](#) | [New Modes of Digital Scholarship](#) | [Open Access Publishing](#) | [Considerations: Selecting and Evaluating Academic Journals](#)

3 Ways to Engage Students

There are multiple ways of providing students an opportunity to engage with the content of this module as it relates to the learning objectives of your course. As you work with a librarian to present this module to your class, below are some interesting ways to engage your students:

1 | Review before Class

- Assign students to watch the module video or read handouts before class.
- Provide clear instructions and a purpose for watching or reviewing. State it clearly: “As you watch, pay attention to....” “You are looking for ...” or “After watching you will”
- Pose a framing question as they begin watching the video. You want your students to start thinking about what they already know about the subject, which helps them make connections between the video and the content already explored.
- Plan for an activity after the lesson based on the video, for example, a discussion, debate, or reflection.

Works for the following course formats:

In-person sessions

Online: Synchronous & Asynchronous sessions

2 | Pause to Ponder

- Watch the video together as a class: online or in-person.
- Give students time to reflect by pausing the video every few minutes or at key moments.
- When pausing the video, ask students to discuss what they just saw. Ensure that this discussion is an organized activity with targeted questions/prompts based on the focus of the module.

- Incorporate activities like writing down reflections, or Q&A sessions. Students can also discuss key points in partnerships and explain the content to each other.

Works for the following course formats:

In-person sessions

Online: Synchronous & Asynchronous sessions

3 | Tell a Story

- Begin your class with an interesting story, one that is relevant to the session's focus. It could be a fictional story with made up characters or based on the instructor's experiences as a researcher. Use voice modulation, role plays, and props to make the stories engaging and capture the students attention.
- Incorporate the module video at a time that is appropriate to the story and align it with the characters of your story.
- This type of an organized narrative teaching strategy helps the facts to linger longer with the students.
- As follow-up activities, provide assignments that require students to apply the knowledge gained during the session in their own research process.

Works for the following course formats:

In-person sessions

Online: Synchronous & Asynchronous sessions

View the section on “Additional Resources” for more ideas for instructional strategies.

3 Ways to Assess Students

Of the many different strategies to assess your students while engaging with these learning modules, below are a few interesting ways to assess your students' understanding of the content:

1 | Share with Peers

- Give students an opportunity to share their ideas, perspectives and work with their peers on concepts explained in the module — either handouts or videos. Take it to the next level by allowing them to evaluate their peers' work and have their work evaluated by peers.
- There are different tools that could allow sharing student's ideas and perspectives with their peers through the:
 - discussions tool (<https://bit.ly/DiscussionsB2B>) in CourseWorks,
 - polling in Poll Everywhere (<https://www.polleverywhere.com/features>),
 - peer review setting (<https://bit.ly/PeerReviewB2B>) in the Assignments tool in CourseWorks.
- These could be graded or ungraded depending on the objectives of your assessment strategies.

Works for the following course formats:

In-person sessions

Online: Synchronous & Asynchronous sessions

2 | Quizzing for Learning

- Use formative assessment strategies to help students improve and learn from their mistakes and misconceptions.
- Exit tickets could help you determine which students need additional teaching in specific areas. Before the session ends, ask them to write down an answer to a question relating to a key concept learned that day either through the videos or

handouts. Questions can be simple, like asking them to highlight what they want to learn more about, or what they found most interesting about the lesson.

- In a classroom environment, these exit tickets could be index cards. In an online environment, these could be ungraded quizzes or a poll question. You could learn about any student misconceptions by making the quizzes anonymous.
- Timing of these quizzes is important. When the class starts, or there's a pause between concepts or topics, administer a quick ungraded quiz to get an understanding of how far along students are in their learning.

Works for the following course formats:

In-person sessions

Online: Synchronous & Asynchronous sessions

3 | Reflect in Journals

- The purpose of reflecting in journals is to encourage students to consider applying what they learned in the course to their own work and in real life situations.
- Pose questions that will direct students to apply the concepts in the module to their own research work. This process will help provide direction, momentum, and allow for careful considerations of the different aspects of their research work. You could also allow students to share their work to gather feedback from you and their peers.
- This activity could be administered through the Discussions tool in CourseWorks.

Works for the following course formats:

In-person sessions

Online: Synchronous & Asynchronous sessions

View the section on “Additional Resources” for more ideas on Assessment strategies.

An Example

The following is an example of how one of the above-mentioned instructional and assessment strategies could be used to present the content in one of the modules in this series:

Video Title: Cite and Organize Sources.

Video Learning Objective:

Understand the importance of citation, how to cite various resource types, and the role of citation in academic integrity.

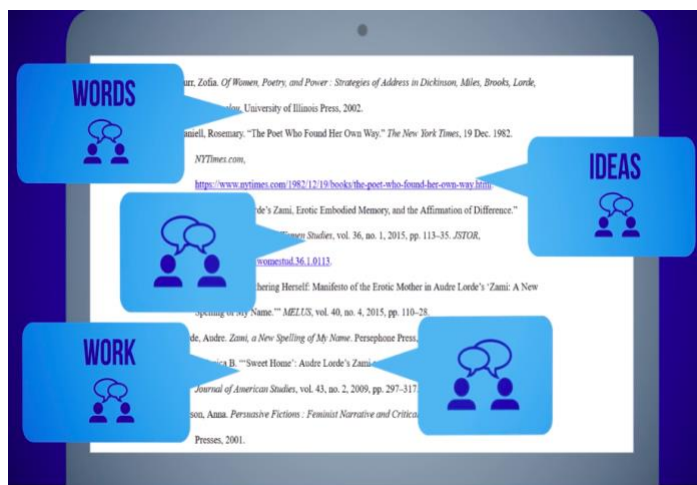


Image 2: Screenshot from the Video - Cite and Organize Sources

Presenting and Engaging with the Video

| Strategy: Pause to Ponder |

- **Pose a framing question before playing the video.** For example, you can ask, “As you read and review materials for your research, do you have a process for recording and organizing the documents that you encounter?”
- **Plan to pause the video after every few minutes**, giving students time to reflect. Provide guidance as to what they have to pay attention to while viewing specific clips, for example, “As you watch the first few minutes of this video, pay attention to what citation means and why it is important.”
- Similarly, **pause at least three times, providing students appropriate framing questions, clues, and time to reflect and discuss any concepts.** Consider using a polling tool for intermittent knowledge checks. For example, you could ask a question such as: “How many of you have used either MLA, APA or Chicago Citation Styles previously?” This question will help students reflect on their prior knowledge and help you gather information on the knowledge level of your students.

After watching the video, you could engage with students either in the online session or in-person sessions for further discussions or provide homework assignments.

Assessing Students' Learning

| Strategy: Share with Peers |

- After the session, ask students to **identify the citation style for their specific discipline.**
- Assign them to follow a certain citation style to **cite at least three resources** they have gathered so far for their research.
- Assign this as a **discussion forum** activity and **share with their peers.**

The above instructional and assessment strategy works for the following course formats:

In-person sessions

Online: Synchronous & Asynchronous sessions

Additional Resources

The following are some additional ideas and inspirations as you explore the different instructional and assessment strategies.

Instructional Strategies:

- Barkley, E. F. (2010). *Student engagement techniques: A handbook for college faculty*. Jossey-Bass. <https://web-b-ebSCOhost-com.ezproxy.cul.columbia.edu/ehost/detail/detail?vid=0&sid=990f8a5c-d72d-45ee-85e3-0861fdd34e92%40pdc-v-sessmgr01&bdata=JnNpdGU9ZWVhc3QtbGl2ZSZzY29wZT1zaXRI#AN=294272&db=nlebk>
- Barkley, E. F., Major, C. H., & Cross, K. P. (2014). *Collaborative learning techniques: A handbook for college faculty*. 2nd Edition. Jossey-Bass.

<https://ebookcentral-proquest-com.tc.idm.oclc.org/lib/teacherscollege-ebooks/detail.action?docID=1745058>

- Bonwell, C. C., & Eison, J. A. (1991). *Active learning: Creating excitement in the classroom*. ASHE-ERIC Higher Education Report No.1, George Washington University, Washington, DC.
<https://eric.ed.gov/?q=Active+Learning%3a+Creating+Excitement+in+the+Classroom.&id=ED340272>
- Cavanagh, S. R. (2019, March 11). How to make your teaching more engaging. Advice guide. *The Chronicle of Higher Education*.
<https://www.chronicle.com/article/how-to-make-your-teaching-more-engaging/>
- Columbia University Center for Teaching and Learning. Accessibility in teaching and learning. Columbia CTL. <https://ctl.columbia.edu/resources-and-technology/resources/accessibility/>
- Columbia University Center for Teaching and Learning. *Active learning for your online classroom: Five strategies using zoom*. Columbia CTL.
<https://ctl.columbia.edu/resources-and-technology/teaching-with-technology/teaching-online/active-learning/>
- Columbia University Center for Teaching and Learning. *Hybrid and online teaching institute*. Columbia CTL. <https://ctl.columbia.edu/faculty/offerings/seminars-institutes-for-faculty/hybrid-online-teaching/>
- Howard, J. R. (2015). *Discussion in the college classroom: Getting your students engaged and participating in person and online*. Jossey-Bass.
<https://ebookcentral.proquest.com/lib/columbia/detail.action?docID=1895497>
- Linder, K. (2016). *The blended course design workbook: A practical guide*. Stylus Publishing. <https://ebookcentral-proquest-com.tc.idm.oclc.org/lib/teacherscollege-ebooks/detail.action?docID=4741215>
- The Patricia K. Cross Academy. *Teaching techniques video library*. The K. Patricia Cross Academy. <https://kpcrossacademy.org/videos/>
- Smith, R. M. (2014). *Conquering the content: A blueprint for online course design and development*. Wiley & Sons. <https://ebookcentral-proquest-com.tc.idm.oclc.org/lib/teacherscollege-ebooks/detail.action?docID=1794063>

- Wiggins, G., & McTighe, J. (2005). *Understanding by design*. Association for Supervision & Curriculum Development. <https://clio.columbia.edu/catalog/5435941>

Assessment Strategies:

- Angelo, T., & Cross, K. P. (1993). *Classroom assessment techniques: A handbook for college teachers*. 2nd Edition. Jossey-Bass. (Print copy only.)
<https://clio.columbia.edu/catalog/3069324>
 - Barkley, E. F., & Major, C. H. (2016). *Learning assessment techniques: A handbook for college faculty*. Jossey-Bass. <https://ebookcentral-proquest-com.tc.idm.oclc.org/lib/teacherscollege-ebooks/detail.action?docID=4205832>
 - Columbia University Center for Teaching and Learning. *Assessment and grading in CourseWorks (Canvas)*. Columbia CTL.
<https://courseworks2.columbia.edu/enroll/FW8WDY>
 - Columbia University Center for Teaching and Learning. *Creating online exams*. Columbia CTL. <https://ctl.columbia.edu/resources-and-technology/teaching-with-technology/teaching-online/courseworks/online-exams/>
 - Stevens, D. D., & Levi, A. J. (2012). *Introduction to rubrics : An assessment tool to save grading time, convey effective feedback, and promote student learning*. Stylus Publishing. <https://web-b-ebSCOhost-com.ezproxy.cul.columbia.edu/ehost/detail/detail?vid=0&sid=18856cd1-26c3-488a-bc02-05cc2d79eebc%40pdc-v-sessmgr04&bdata=JnNpdGU9ZWlhvc3QtbGl2ZSZzY29wZT1zaXRl>
 - Walvoord, B. E., & Anderson, V. J. (2009). *Effective grading: A tool for learning and assessment in college*. Jossey-Bass. <https://ebookcentral-proquest-com.tc.idm.oclc.org/lib/teacherscollege-ebooks/detail.action?docID=468807>
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