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## **Applying Evidence-based Research Principles in Review Design: Supporting Graduate and Faculty Research in the Life Sciences**

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# Applying Evidence-based Research Principles in Review Design: Supporting Graduate and Faculty Research in the Life Sciences



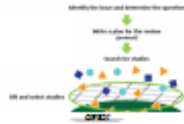
Applying Evidence-based Research Principles in Review Design:  
Supporting Graduate and Faculty Research in the Life Sciences  
Chris Fournier and Kate Ghezzi-Kopel  
Cornell University Library



## Background



"Do you really want to do a systematic review?"



## Evidence-based Review Checklist



## Systematic Review Team



## Systematic Review Team



Chris Fournier and Kate Ghezzi-Kopel

Cornell University Library



PRESENTED AT:

## BACKGROUND



Through CUL's research consultation service and classroom instruction support, we identified a need for training of patrons who are preparing literature reviews across science and social sciences disciplines.

These literature reviews are written for graduate theses, for a class assignment, or for publication as a review article.

Based on our experience supporting systematic reviews, we wanted to provide evidence-based guidance for development of any kind of literature review, not just systematic reviews.

We have drawn from standardized guidelines such as PRISMA-P (<http://www.prisma-statement.org/documents/PRISMA-P-checklist.pdf>) to create a checklist that guides patrons through the creation of a reproducible, unbiased, transparent literature review plan (or protocol).

**Systematic Review:** A methodical and comprehensive literature synthesis focused on a well-formulated research question. Its aim is to identify and synthesize all of the scholarly research on a particular topic, including both published and unpublished studies.

**Literature Review:** A broad term referring to reviews with a wide scope and non-standardized methodology.

Checklist Reference

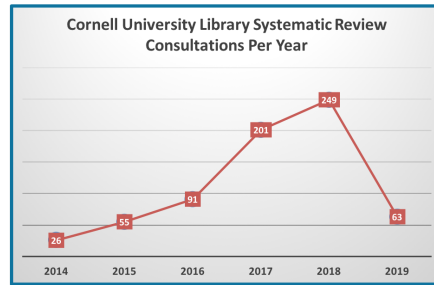
<https://casp-uk.net/casp-tools-checklists/> (<https://casp-uk.net/casp-tools-checklists/>)



# EVIDENCE-BASED REVIEW CHECKLIST



# SYSTEMATIC REVIEW TEAM



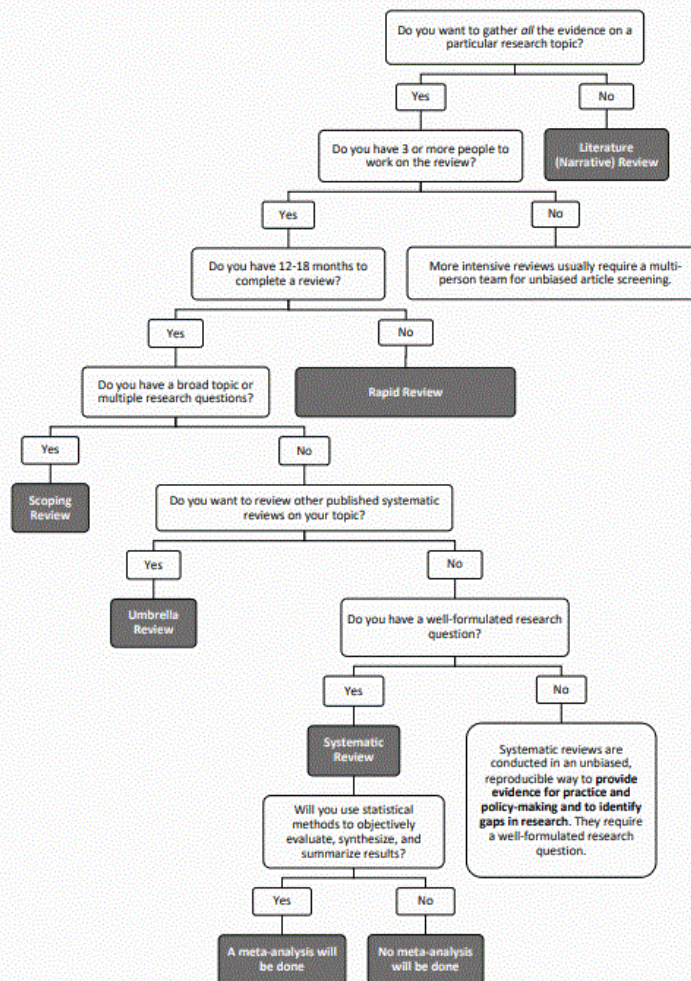
Cornell University Library's systematic review service was developed in 2015 and provides consultation and co-authorship services to Cornell patrons performing systematic reviews of the literature.

Our team consists of 7 librarians representing a variety of subject expertise areas.

The need for librarian support of systematic reviews beyond the health sciences is growing steadily, particularly among research institutions that serve agriculture and life sciences disciplines. The number of consultations we provide annually has increased from 62 in 2015, to 249 in 2018.

Most patrons using our service *do not* go on to do a full systematic review, but are seeking a more structured and evidence-based approach to a traditional literature review. This checklist is one tool we have developed in response to this need. Another tool is a decision tree ([https://guides.library.cornell.edu/systematic\\_reviews/evidence\\_synthesis](https://guides.library.cornell.edu/systematic_reviews/evidence_synthesis)) to help patrons determine which type of study best suits their needs (see below).

## What Type of Review is Right for You?





# SYSTEMATIC REVIEW TEAM

## CONTACT US



The Systematic Review Team:

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## AUTHOR INFORMATION

Chris Fournier joined Cornell University's Albert R. Mann Library as Life Sciences Librarian for Research in 2015. She serves as liaison to Animal Sciences, Plant Biology, Plant Breeding and Genetics, and Biological Statistics and Computational Biology. She is also a member of the Cornell Systematic Review Team where she specializes in providing support for reviews in the natural sciences. Chris received her Masters degree in Sustainable Development and Conservation Biology from the University of Maryland, College Park. Before becoming a librarian, Chris was coordinator for I3N databases and liaison to international programs for the National Biological Information Infrastructure of the U.S. Geological Survey.

Kate Ghezzi-Kopel is Health Sciences and Evidence Synthesis Librarian at Cornell University's Albert R. Mann Library. She is the liaison to the Cornell Department of Human Development and the Division of Nutritional Sciences. As coordinator of the Cornell University Library Systematic Review Service, Kate provides evidence synthesis methodology guidance and instruction across disciplines at Cornell, and works with global initiatives to expand systematic review training for librarians and researchers. Kate received her Masters degree in Library and Information Science from Syracuse University. Before becoming a librarian, Kate was an acquisitions editor for academic books.



## ABSTRACT

The reproducibility crisis in published scientific work is changing the way that research is conducted and published. Librarians in academic institutions can play a key role in promoting transparency, reduction of bias, and improved reproducibility in research. We provide a checklist for researchers on best practices based on standard, evidence-based literature review development guidelines.

Protocol checklists can be used by librarians as a conversation framework when assisting patrons who are designing literature reviews. These checklists aim to reduce cognitive bias, and the preregistration of completed protocols leads to openness around rationale, hypothesis, and planned methods for executing the review.