



# Research Study Design

This course provides learners with an understanding of how to improve study design, collect and analyze data, and promote reproducible research.

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## About this Course

The Research Study Design course provides learners with an introduction to research study design, a detailed overview view of scientific inquiry, examples of various research designs, a discussion of data management methods, and introduction to statistical analysis, and sound approaches to optimize the reproducibility. This course is valuable to university undergraduate and graduate students who are taking a classroom research study design course or who need a refresher on a specific aspect of research design. Research team members and Institutional Review Board members who may need an overview or refresher on research design concepts will also find the course meaningful.

This course was authored and peer-reviewed by experts.

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## Course Content

### Introduction to Scientific Research

Provides an introduction to the steps involved in scientific research, including how to formulate a research question and the steps associated with developing a hypothesis. The module concludes with an overview of the Institutional Review Board (IRB) and other committees that may be involved in the review of research.

ID (Language): 17581 (English)

Author(s):

Michael Belotto, PhD, MPH, CCRA, CCRC – BRANY

Christina Ventura-DiPersia, MPH - Hofstra University

### Observational Research

Presents different types of observational research designs and includes a discussion on determining the best designs to fit with intended research activities. The module concludes with a discussion on the strengths and limitations of the designs.

ID (Language): 17582 (English)

Author(s):

Michael Belotto, PhD, MPH, CCRA, CCRC – BRANY

Christina Ventura-DiPersia, MPH - Hofstra University



## **Interventional Research**

Identifies the different types of interventional studies and designs, including special considerations associated with interventional research designs.

ID (Language): I7583 (English)

Author(s):

Michael Belotto, PhD, MPH, CCRA, CCRC – BRANY

Christina Ventura-DiPersia, MPH - Hofstra University

## **Quantitative Research (Statistical Reasoning and Hypothesis Testing) - Part 1**

Provides an overview of statistical reasoning, hypothesis testing, and research design. Explores how researchers develop research questions, generate research hypotheses, understand variability, and develop methods for explaining variability to the extent possible.

ID (Language): I7584 (English)

Author(s): Dee Andrews, PhD

## **Quantitative Research (Statistical Reasoning and Hypothesis Testing) - Part 2**

Expands on the fundamentals of statistics and explores how statistics are used to make research decisions.

ID (Language): I7585 (English)

Author(s): Dee Andrews, PhD

## **Survey Research: Designing the Instrument New Content**

Provides an overview of survey research design, with a focus on developing and pilot testing the survey instrument.

ID (Language): I7586 (English)

Author(s): Seth J. Schwartz, PhD - University of Miami

## **Survey Research: Conducting the Research New Content**

Discusses key areas associated with conducting survey-based research, including ways to adapt surveys for new populations, different samples and sampling techniques, and ways to administer surveys.

ID (Language): I7587 (English)

Author(s): Seth J. Schwartz, PhD - University of Miami



## **Qualitative Research Methods**

Provides an overview of qualitative research and differences among the major qualitative research designs. Highlights critical issues to consider when designing a qualitative study.

ID (Language): 19101 (English)

Author(s): Moin Syed, PhD - University of Minnesota

## **Mixed Methods Research**

Describes mixed methods research and the rationale for using a mixed methods design. Includes an overview of the different mixed methods designs and the major design decisions to consider.

ID (Language): 17588 (English)

Author(s): Moin Syed, PhD - University of Minnesota

## **Data Management**

Discusses the ethical issues associated with data, including data collection, management, sharing, ownership, and protection.

\*Note, this module is part of the CITI Program's Responsible Conduct of Research (RCR) course, but is also included in this course.

ID (Language): 16600 (English)

Author(s): Reid Cushman, PhD - CITI Program

## **Reproducibility of Research Results**

Discusses factors that contribute to the lack of reproducibility and the resulting problems that can emerge. The module also describes the stakeholders affected by reproducibility problems, a collection of reproducibility initiatives, and strategies that can mitigate or prevent irreproducibility.

\*Note, this module is part of the CITI Program's Responsible Conduct of Research (RCR) course, but is also included in this course.

ID (Language): 17756 (English)

Author(s): Teri A. Hamill, PhD - Nova Southeastern University