



**Council on
Undergraduate Research**
Learning Through Research

FINDING A C.U.R.E.

Course-based Undergraduate Research Experiences

Nestor Matthews

Denison University



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<https://osf.io/f6djk/>

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MOTIVATION



“The one who does the work does the learning!”



MOTIVATION

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High-Impact Practices

The teaching and learning practices below have been widely tested and have been shown to be beneficial for college students from many backgrounds, especially historically underserved students, who often do not have equitable access to high-impact learning. These practices take many different forms, depending on learner characteristics and on institutional priorities and contexts.

- First-Year Experiences
- Common Intellectual Experiences
- Learning Communities
- Writing-Intensive Courses
- Collaborative Assignments and Projects
- Undergraduate Research
- Diversity/Global Learning
- ePortfolios
- Service Learning, Community-Based Learning
- Internships
- Capstone Courses and Projects

OVERVIEW

- Starting a C.U.R.E.
- Metacognition
- IRB Considerations
- Methods
- Cultivating Data Savvy
- Writing
- Crisis Management
- The Big Finish

STARTING A C.U.R.E.

- Using backward design
- Developing timelines
- Establishing research groups
- Helping students frame research questions and conduct literature searches
- Setting expectations for communication and collaboration
- Preparing students for uncertainty

METACOGNITION

- Preliminary APA-style student oral presentations with mock data



<https://commons.wikimedia.org/wiki/File:Metacognition.jpg>

IRB CONSIDERATIONS

- Certifying students' human subjects research (HSR) training
 - Citi Program
 - <https://about.citiprogram.org/en/series/human-subjects-research-hsr/>
- Navigating student-generated IRB proposals
- Designing recruitment plans



https://commons.wikimedia.org/wiki/File:NIH_Clinical_Research_Center_aerial.jpg

METHODS

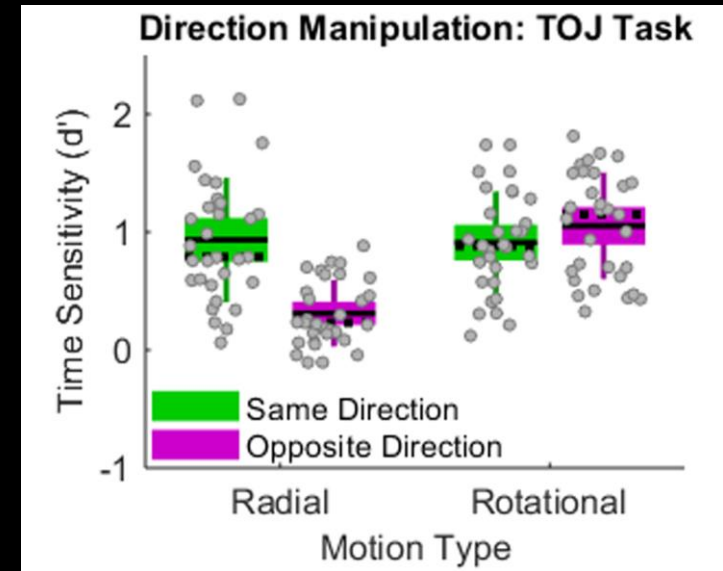
- Creating or acquiring surveys, materials, or stimuli
- Pilot testing
- Developing research scripts
- Sharing materials and data
 - Center for Open Science <https://cos.io/>
 - Open Science Framework <https://osf.io/>



<https://osf.io/tvyxz/wiki/home/>

CULTIVATING DATA SAVVY

- The benefits of student-generated dummy-data sets
- Graphing practice
 - draw.to
 - <http://draw.to/new>
- Low-stakes data analysis quizzes before actual data collection



WRITING

- Scaffolding the writing process across APA-manuscript components
- Writing rubrics
- Writing Workshops



<https://osf.io/f6djk/>

CRISIS MANAGEMENT

- Social loafing
- Procrastination
- Diffusion of responsibility
- “Too many chiefs”
- Interpersonal conflicts
- Schedule conflicts
- Low participant turn-out
- Genuine emergencies

THE BIG FINISH

- Workshopping the final manuscript or grant proposal
- Conducting talks and poster sessions
- Producing pod-casts, videos, or TED-Ed lessons
- Taking students to regional conferences
- Submitting manuscripts for publication

The screenshot shows the TED-Ed website interface. At the top, the TED-Ed logo is on the left, and navigation links for 'Discover', 'Create', and 'Support' are in the center. The main title of the lesson is 'Neuroscience: Neural Networks of Superior Memorizers'. Below the title, it states 'LESSON CREATED BY ALLISON MURPHY USING TED-Ed's LESSON CREATOR' and 'VIDEO FROM Nestor Matthews YOUTUBE CHANNEL'. A 'Let's Begin...' section features a video player with a play button. The video thumbnail shows two women in a classroom setting, one pointing at a screen displaying brain diagrams. To the right of the video player are three buttons: 'Watch', 'Think', and 'Dig Deeper'.

<https://ed.ted.com/on/SNIR5n81>

<https://ed.ted.com/>



QUESTIONS AND COMMENTS