“Research in Action” Podcast Instructor Guide

Use the following episode description, learning objectives, guiding questions and activity suggestions to more easily include “Research in Action” podcast episodes as a supplemental resource for your course.

Oregon State University

Podcast and Episode Information

"Research in Action" is a weekly podcast about topics and issues related to research in higher education featuring experts across a range of disciplines.

On this episode of the podcast, the guest is Dr. Tim McKay, the Arthur Thurnau Professor of Physics, Astronomy, & Education at the University of Michigan. He was trained as a particle physicist, and has been teaching large physics courses and doing research in cosmology, astrophysics, and education at Michigan for 25 years. All of his work involves drawing inference from large, complex data sets. In recent years, he has helped launch a campus-wide Foundational Course Initiative. This project promotes and supports collaborative design, development, and delivery of large residential courses, with a strong emphasis on examining evidence and personalizing the student experience.

Segment One [00:00-11:42] - In this segment, Tim describes his research in astrophysics.

Segment Two [11:43-22:09] - In this segment, Tim shares about some of the tools he has built to collect data for his research.

Segment Three [22:10-37:09] - In this segment, Tim discusses what led him to research learning analytics.

Show notes and a transcript for this episode can be found at: http://ecampus.oregonstate.edu/research/podcast/e125/

Learning Outcomes

By listening to this episode, students will be able to:

- Define astrophysics
- Describe some examples of research tools that might be utilized in researching astrophysics
- Describe some of the challenges in working with very large data sets
- Discuss the purpose of data analytics

Guiding Questions for Listening

- What is astrophysics?
- According to Dr. McKay, what is the role of the mathematics within astrophysics?
- What are some of the larger research questions Dr. McKay is seeking to answer to address the "origin of structure" in astrophysics?
- What are gamma ray bursts?
- According to Dr. McKay, what is "much of the actual practice of science"?
- What does Dr. McKay share are some of the research tools he is utilizing to collect data?
- What does Dr. McKay share are some of the environmental elements that need to be considered when building research tools in various settings?
- What appear to be some of the challenges in working with very large data sets?
- Why did Dr. McKay become involved in data analytics?

Possible Activities

- Ask students to visit the show notes for this episode (http://ecampus.oregonstate.edu/research/podcast/e125/) and look at an additional resource that is linked in connection with this episode. Students can write a short review of that resource to share with their peers.

- Ask students to visit the show notes for this episode (http://ecampus.oregonstate.edu/research/podcast/e125/) and post an additional resource connected to the content of the episode in the comments section.

- Have students share questions that are raised for them based on the content of this episode. What would they ask Dr. Tim McKay if they could?

Suggested Citation (APA, 6th edition)

Linder, K. (Producer/host). (2018, August 20). *Dr. Tim McKay on Astrophysics.* [Audio podcast]. Retrieved from http://ecampus.oregonstate.edu/research/podcast/e125/

Notes

About the Research in Action Podcast

"Research in Action" (RIA) is a podcast about topics and issues related to research in higher education featuring experts across a range of disciplines. Episodes are posted weekly and include guest interviews and occasional solo episodes. Guests are from a range of higher education institutions and share their expertise on qualitative, quantitative and mixed methods as well as their personal experiences as researchers, research and writing practices, organizational and productivity strategies, and much more. Some weeks, bonus content will also be posted.

"Research in Action" is hosted by Dr. Katie Linder, research director for Oregon State University Ecampus.

Visit the podcast website to view show notes and transcripts for each episode, explore our episode guide, learn more about how to contact us, or suggest a future guest or topic.

You may subscribe to the "Research in Action" RSS feed or access the podcast via iTunes, Soundcloud or Stitcher. "Research in Action" is also listed on MERLOT.

The "Research in Action" podcast is a resource funded by Oregon State University Ecampus – ranked top ten in the nation for online education two years running by U.S. News & World Report. OSU Ecampus has more than 45 degree programs and more than 1,000 classes online.

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