






# DR. ABHIK ROY

## EDUCATION

- 2016 • Western Michigan University  
Ph.D. in Program Evaluation  Kalamazoo, MI
- Dissertation.* Building an Evaluation Model of Academic Advising's Impact on Progression, Persistence, and Retention Within University Settings
- 2007 • Michigan Technological University  
M.S. in Mathematics  Houghton, MI
- Thesis.* Quotient Rings of the Eisenstein Integers
- 2001 • West Virginia Wesleyan College  
B.S. in Mathematics  Buckhannon, WV
- Terminal Study.* 4-Cell Embedding on a  $n$ -genus Torus






## PROFESSIONAL EXPERIENCE

- Current | 2016 • Assistant Professor  
West Virginia University  Morgantown, WV
- Advising masters and doctoral level students. building Shiny apps and APIs within the R/RStudio environment.
  - Authoring and submitting papers to peer reviewed publications. • Developing enhanced and interactive surveys in Qualtrics using HTML, CSS, & Javascript.
  - Pulling data from multiple remote sources, constructing static, active, and interactive visualizations for production and/or embedding within reports, and • Evaluating various programs, projects, and grants.
  - Teaching evaluation and methods based classes with a focus on data science.
- 2016 | 2014 • Data Analyst  
University of Kansas  Lawrence, KS
- Created web apps in Shiny and Tableau to pull, summarize, and visualize data from the organization's Oracle database. • Prepared evaluation reports for various stakeholders.
  - Led and presented findings from small and large scale qualitative, quantitative, and mixed-methods studies. • Researched and implemented predictive statistical models for student retention and graduation efforts.



WWW 

## CONTACT INFORMATION

-  [abhikrroy@protonmail.com](mailto:abhikrroy@protonmail.com)
-  [github.com/drabhikroy](https://github.com/drabhikroy)
-  [iam.adasocialscientist.com](http://iam.adasocialscientist.com)
-  +1 304-554-9436
-  0000-0002-7085-8964

## EXPERTISE

**Data visualization**


**Content, cluster, and social network analysis**

**Modeling using statistics and machine learning**

**Text mining**

**Planning and conducting program evaluations**

**Designing and administering small- and large-scale surveys**

**Programming and analysis in  with markup using *L<sup>A</sup>T<sub>E</sub>X***

**App development and dynamic reporting using**





## SELECT PUBLICATIONS

- 2023 ● Program Evaluation Standards for Utility Facilitate Stakeholder Internalization of Evaluative Thinking in the West Virginia Clinical Translational Science Institute  
*Journal of Multidisciplinary Evaluation*  
Curtis, R., **Roy, A.**, Lewis, N., Dooty, E. N., & Mikalik, T. [https://journals.sfu.ca/jmde/index.php/jmde\\_1/article/view/831](https://journals.sfu.ca/jmde/index.php/jmde_1/article/view/831)
- 2022 ● Thinking Processes in Code.org: A Relational Analysis Approach to Computational Thinking Computer Science Education  
*Computer Science Education*  
Kale, U., Yuan, J., & **Roy, A.** <https://doi.org/10.1080/08993408.2022.2145549>
- 2021 ● There's So Much to Do and Not Enough Time to Do It! A Case for Sentiment Analysis to Derive Meaning From Open Text Using Student Reflections of Engineering Activities.  
*American Journal of Evaluation*, 42 (4), 559–576.  
**Roy, A.**, & Rambo-Hernandez, K.E. <https://doi.org/10.1177/1098214020962576>
- 2020 ● To design or to integrate? Instructional design versus technology integration in developing learning interventions.  
*Education Tech Research Dev* 68, 2473–2504.  
Kale, U., **Roy, A.** & Yuan, J. <https://doi.org/10.1007/s11423-020-09771-8>
- 2020 ● Using Interactive Theater to Promote Inclusive Behaviors in Teams for First-year Engineering Students: A Sustainable Approach.  
*Development of A Holistic Cross-Disciplinary Project Course Experience as a Research Platform for the Professional Formation of Engineers*.  
Dey, K.C., & Rahman, M.T., & Pyrialakou, V.D., & Martinelli, D., & Rambo-Hernandez, K.E., & Fraustino, J.D., & Deskins, J., & Plein, L.C., & **Roy, A.R.** <https://doi.org/10.18260/1-2--34446>
- 2018 ● General chemistry student attitudes and success with use of online homework: Traditional-Responsive versus Adaptive-Responsive.  
*Journal of Chemical Education*, 95 (5), 691-699.  
Richard-Babb, M., Curtis, R., Ratcliff, B., **Roy, A.R.**, & Mikalik, T. <https://doi.org/10.1021/acs.jchemed.7b00829>
- 2018 ● To go virtual or not to go virtual, that is the question: A comparative study of face-to-face versus virtual laboratories in a physical science course.  
*Journal of College Science Teaching*, 48 (2), 59-67.  
Miller, T.A., Carver, J.S., & **Roy, A.R.** <https://www.jstor.org/stable/26616271>
- 2014 ● Reasoning-and-proving in algebra: The case of two reform-oriented U.S. textbooks.  
*International Journal of Educational Research* 64., 92-106  
Davis, J.D., Smith, D.O., **Roy, A.R.**, & Bilgic, Y. K. <https://doi.org/10.1016/j.ijer.2013.06.012>
- 2012 ● What's in a Scriven number?  
*Journal of MultiDisciplinary Evaluation*, 8 (19), 41-45.  
**Roy, A.R.**, Hobson, K.A., & Coryn, C.L.S. [https://journals.sfu.ca/jmde/index.php/jmde\\_1/article/view/372/358](https://journals.sfu.ca/jmde/index.php/jmde_1/article/view/372/358)



## BOOK CHAPTERS

2014

- Social network analysis: Finding meaning in connections.  
*Nova Science Publishers, Inc.*  
**Roy, A.R.** 978-1-53612-734-8



## INVITED CONTRIBUTIONS


2012

- What is a Scriven number?  
*The American Evaluation Association Newsletter*  
**Roy, A.R.**, Hobson, K.A., & Coryn, C.L.S.



## ACTIVE GRANTS


2022

- Teaching Science with Computational Thinking: Preparing Preservice Elementary Educators of the Future STEM Workforce  
West Virginia University  Morgantown, WV
  - Implementing process and impact evaluations of program activities
  - Conducting quantitative text analysis of written and interview data using machine learning
  - Constructing and validating survey instruments used to assess progress and effect
  - Total Amount: \$294,958.00




## INACTIVE GRANTS


2022  
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2017

- WVCTSI: West Virginia Clinical and Translational Science Institute  
West Virginia University  Morgantown, WV
  - Analyzing large data sets using frequentist and Bayesian methods.
  - Conducting local and multi-site mutli-cluster evaluation studies.
  - Developing/validating items and distributing customized Qualtrics surveys built with CSS and Javascript.
  - Pulling, wrangling, and visualizing secondary data in R.
  - Mentoring future graduate social data scientists.
  - \$20,000,000
  - 2017-NIH 2U54GM104942-02

2020  
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2021

- Appalachian Gerontology Experiences - Advancing Diversity in Aging Research  
West Virginia University  Morgantown, WV
  - Developing and distributing customized Qualtrics surveys built with CSS and Javascript.
  - Performing various evaluative studies addressing program efficacy and engagement.
  - \$678,000
  - 2020-1R25AG059558-01A1

2020  
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2022

- Research Initiative: A Holistic Cross-Disciplinary Project Experience as a Platform to Advance the Professional Formation of Engineers  
West Virginia University  Morgantown, WV
  - Advising engineering faculty and graduate students on implementation of study methods.
  - Conducting quantitative and qualitative studies on undergraduate student experiences within grant related programs.
  - \$200,000
  - 2019-NSF-EEC 1927232

- 2018  
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2017

● Stepping UP with Avenue: Progress Monitoring: A Software Suite Helping Teachers Improve Literacy Progress For Deaf/Hard Of Hearing Students  
Pennsylvania State University  
• \$2,470,440  
• 2017-ED H327S170012

📍 State College, PA
- 2018  
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2017

● Cultivating Inclusive Identities of Engineers and Computer Scientists: Expanding Efforts to Infuse Inclusive Excellence in Undergraduate Curricula  
West Virginia University  
• \$2,000,000  
• 2017-NSF 1725880

📍 Morgantown, WV
- 2020  
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2017

● GAUSSI: Generating, Analyzing, and Understanding Sensory and Sequencing Information: A Trans-Disciplinary Graduate Training Program in Biosensing and Computational Biology  
Colorado State University  
• \$3,013,779  
• 2017-NSF: NRT-DESE

📍 Fort Collins, CO



## PRESENTATIONS

- 2022

● Let's Get Sentimental: Machine Learning Aided Data Analysis for Large Qualitative Data Sets  
*American Evaluation Association Annual Conference*  
Seidel, T. , Ferguson, C.F., & **Roy, A.R.**

📍 New Orleans, LA
- 2022

● Best of Both Worlds: Affordances of Mixing Machine Learning and Qualitative Content Analysis  
*American Educational Research Association Annual Meeting*  
Roy, A.R., Ferguson, C.F., Curtis, R., & Babb-Richards, M.

📍 San Diego, CA
- 2020

● These Aren't Random Words Just Strung Together?: Using Machine Learning and Pretty Visualizations to Discover Topics in Articles.  
*American Evaluation Association Annual Conference*  
**Roy, A.R.**

📍 virtual
- 2019

● Little Fish in a Big Pond, Only Fish in a Little Pond: How Roles Shape our Identities as Evaluators.  
*American Evaluation Association Annual Conference*  
M, Loomis, D.L., Mikalik, T.L., Curtis, R., **Roy, A.R.**, & Bernstein, M.

📍 Minneapolis, MN
- 2019

● Evolving Program Logic Models to Meet Shifting Program Needs: The Case of WV Clinical Translational Science Institute.  
*American Evaluation Association Annual Conference*  
Curtis, R., **Roy, A.R.**, Bernstein, M, Loomis, D.L., & Mikalik, T.L.

📍 Minneapolis, MN
- 2019

● The Value of External Evaluators When Building Clinical Translational Research Infrastructure.  
*American Evaluation Association Annual Conference*  
Curtis, R., **Roy, A.R.**, Bernstein, M, Loomis, D.L., & Mikalik, T.L.

📍 Minneapolis, MN
- 2019

● Using Associated Networks to Evaluate Content within Courses.  
*American Evaluation Association Annual Conference*  
**Roy, A.R.**, Kale, U, & Yuan, J.

📍 Minneapolis, MN

- 2019 ● Why Is It That Writers Write but Fingers Don't Fing? Using Machine Learning and Lexemes to Make Sense of Nonsense.  
*American Evaluation Association Annual Conference* 📍 Minneapolis, MN  
**Roy, A.R.**, Curtis, R., Mikalik, T.L., Loomis, D.L., & Bernstein, M.
- 2019 ● Discovering the Underlying Meaning Behind Get Me Off Your F\*\*\*ing Mailing List? and Most Other Narratives.  
*American Evaluation Association Annual Conference* 📍 Minneapolis, MN  
**Roy, A.R.**, Curtis, R., Mikalik, T.L., Loomis, D.L., & Bernstein, M.
- 2019 ● Assessing for Improvement: The Use of Artificial Intelligence to Uncover Potential Differential Impact of Assignments.  
*American Evaluation Association Annual Conference* 📍 Toronto, CN  
**Roy, A.R.** & Rambo-Hernandez, K.
- 2018 ● That's a Pretty Picture of Dots and Lines but What Does it Mean?: A Q&A Session with the Social Network Analysis TIG Leaders.  
*American Evaluation Association Annual Conference* 📍 Cleveland, OH  
**Roy, A.R.**, Durland, M.M., Woodland, R., & Phillips, G.
- 2018 ● Navigating Buy-in and Shifting Evaluation Needs Over Time in NIH Clinical Translational Research Award.  
*American Evaluation Association Annual Conference* 📍 Cleveland, OH  
Curtis, R., & **Roy, A.R.**, Mikalik, T.L.
- 2018 ● Using a Mixed Methods Evaluation to Discover How an Interactive Theater Based Model Stimulates Inclusive Behaviors in Engineering.  
*American Evaluation Association Annual Conference* 📍 Cleveland, OH  
**Roy, A.R.**, Rambo-Hernandez, K., Hensel, R.A., & Morris, M.L.
- 2018 ● Collaboration Evaluation: Using Social Network Analysis to Reveal an Active Undiscovered Network.  
*American Evaluation Association Annual Conference* 📍 Cleveland, OH  
**Roy, A.R.**, Curtis, R., & Mikalik, T.L.
- 2018 ● Examining the Past and Looking Forward: The Future of Evaluation Theory and Use.  
*American Evaluation Association Annual Conference* 📍 Cleveland, OH  
**Roy, A.R.** & Hobson, K.A.
- 2017 ● Transforming Graduate STEM Education: A Theory-Driven Evaluation of the GAUSSI National Science Foundation Research Training (NRT) Program.  
*American Evaluation Association Annual Conference* 📍 Washington, DC  
**Roy, A.R.**, Hernandez, P.A., Chen, T., & Paguyo, C.
- 2017 ● Program Evaluation for Everyone! - Constructing an Online Foundational Course for Capacity Building using Theorists as a Focus.  
*American Evaluation Association Annual Conference* 📍 Washington, DC  
**Roy, A.R.** & Curtis, R.P.
- 2017 ● Three Stages Down! Exploring the Criteria for the Next Generation of Evaluation Theorists through Social Network Analysis.  
*Hawaii-Pacific Evaluation Association Annual Conference* 📍 Kane'ohe, HI  
**Roy, A.R.** & Hobson, K.A.

2017	<ul style="list-style-type: none"> <li>Content in the Background: Using Evaluation Theorists as the Principal Motivator for Foundational Evaluation Courses. <i>Hawaii-Pacific Evaluation Association Annual Conference</i> <b>Roy, A.R.</b> &amp; Curtis, R.P.</li> </ul>	📍 Kane'ohe, HI
2015	<ul style="list-style-type: none"> <li>Survey Says! Students Getting Tired of Surveys. <i>National Academic Advising Association Annual Conference</i> <b>Roy, A.R.</b> &amp; Goetz, H.L.</li> </ul>	📍 Las Vegas, NV
2013	<ul style="list-style-type: none"> <li>Influences of Hierarchical Linear Modeling in Evaluation. <i>Aotearoa New Zealand Evaluation Association Annual Conference</i> <b>Roy, A.R.</b> &amp; Goetz, H.L.</li> </ul>	📍 Auckland, NZ
2012	<ul style="list-style-type: none"> <li>Survey sample methods: Evaluators' toolbox refreshment. <i>American Evaluation Association Annual Conference</i> <b>Roy, A.R.</b> &amp; Hobson, K.A.</li> </ul>	📍 Minneapolis, MN



## TEACHING EXPERIENCE IN EVALUATION AND METHODOLOGY (2016 - )

2020   2018	<ul style="list-style-type: none"> <li>Data Visualization West Virginia University 2020, 2018</li> </ul>	📍 Morgantown, WV
2017	<ul style="list-style-type: none"> <li>Educational Psychology West Virginia University 2017</li> </ul>	📍 Morgantown, WV
2016	<ul style="list-style-type: none"> <li>Educational Research West Virginia University</li> </ul>	📍 Morgantown, WV
2022   2016	<ul style="list-style-type: none"> <li>Introduction to Research West Virginia University 2022, 2018, 2017, 2016</li> </ul>	📍 Morgantown, WV
2020   2018	<ul style="list-style-type: none"> <li>Measurement/Evaluation in Educational Psychology West Virginia University 2022, 2020, 2018</li> </ul>	📍 Morgantown, WV
2019   2017	<ul style="list-style-type: none"> <li>Mixing Research Methodologies West Virginia University 2022, 2019, 2018, 2017</li> </ul>	📍 Morgantown, WV
2022   2017	<ul style="list-style-type: none"> <li>Program Evaluation West Virginia University 2022, 2021, 2020, 2019, 2018, 2017</li> </ul>	📍 Morgantown, WV
2021   2017	<ul style="list-style-type: none"> <li>Social Network Analysis West Virginia University 2021, 2017</li> </ul>	📍 Morgantown, WV

2021   2017	<ul style="list-style-type: none"> <li>Statistical Methods 1 West Virginia University 2021, 2020, 2019, 2018, 2017</li> </ul>	<ul style="list-style-type: none"> <li>Morgantown, WV</li> </ul>
2020   2022	<ul style="list-style-type: none"> <li>Survey Design West Virginia University 2022, 2020</li> </ul>	<ul style="list-style-type: none"> <li>Morgantown, WV</li> </ul>



## TEACHING EXPERIENCE IN MATHEMATICS (2005 - 2015)

2008	<ul style="list-style-type: none"> <li>Business Calculus Central Michigan University</li> </ul>	<ul style="list-style-type: none"> <li>Mount Pleasant, MI</li> </ul>
2009	<ul style="list-style-type: none"> <li>College Algebra Central Michigan University</li> </ul>	<ul style="list-style-type: none"> <li>Mount Pleasant, MI</li> </ul>
2012	<ul style="list-style-type: none"> <li>Discrete Mathematics Pittsburgh State University</li> </ul>	<ul style="list-style-type: none"> <li>Pittsburgh, KS</li> </ul>
2014	<ul style="list-style-type: none"> <li>Elementary Statistics Pittsburgh State University</li> </ul>	<ul style="list-style-type: none"> <li>Pittsburgh, KS</li> </ul>
2010   2009	<ul style="list-style-type: none"> <li>Foundations of Statistics Pittsburgh State University 2009, 2010</li> </ul>	<ul style="list-style-type: none"> <li>Pittsburgh, KS</li> </ul>
2008   2007	<ul style="list-style-type: none"> <li>Intermediate Algebra Central Michigan University 2007, 2008</li> </ul>	<ul style="list-style-type: none"> <li>Mount Pleasant, MI</li> </ul>
2007	<ul style="list-style-type: none"> <li>Integral Calculus Michigan Technological University</li> </ul>	<ul style="list-style-type: none"> <li>Houghton, MI</li> </ul>
2015   2014	<ul style="list-style-type: none"> <li>Linear Algebra University of Kansas 2014, 2015</li> </ul>	<ul style="list-style-type: none"> <li>Lawrence, KS</li> </ul>
2013	<ul style="list-style-type: none"> <li>Mathematical Thinking Grades 6-12 Western Michigan University</li> </ul>	<ul style="list-style-type: none"> <li>Kalamazoo, MI</li> </ul>
2014   2013	<ul style="list-style-type: none"> <li>Mathematics Curriculum Grades 6-12 Western Michigan University 2013, 2014</li> </ul>	<ul style="list-style-type: none"> <li>Kalamazoo, MI</li> </ul>
2005	<ul style="list-style-type: none"> <li>Multivariable Calculus Michigan Technological University</li> </ul>	<ul style="list-style-type: none"> <li>Houghton, MI</li> </ul>
2007   2006	<ul style="list-style-type: none"> <li>Single Variable Calculus Michigan Technological University 2006, 2007</li> </ul>	<ul style="list-style-type: none"> <li>Houghton, MI</li> </ul>

## SERVICE

2022  
|  
2013

● Associate Editor  
*Journal of MultiDisciplinary Evaluation*

## MEMBERSHIPS

2022  
|  
2012

● American Evaluation Association