

# DR. ABHIK ROY

## EDUCATION

- 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
- Michigan Technological University  
M.S. in Mathematics 📍 Houghton, MI  
*Thesis.* Quotient Rings of the Eisenstein Integers
- West Virginia Wesleyan College  
B.S. in Mathematics 📍 Buckhannon, WV  
*Terminal Study.* 4-Cell Embedding on a  $n$ -genus Torus

## PROFESSIONAL EXPERIENCE

2023  
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2016

- Assistant Professor  
West Virginia University 📍 Morgantown, WV
  - Contributed to peer-reviewed publications by authoring and submitting scholarly papers.
  - Conducted rigorous evaluations of a variety of programs, projects, and grants, contributing to their optimization and effectiveness.
  - Designed and implemented dynamic and interactive surveys using HTML, CSS, and JavaScript in the Qualtrics platform.
  - Extracted, wrangled, and cleaned data from various remote sources; developed a range of static, active, and interactive visualizations for public reporting and/or dissemination to clients, and built web apps in Shiny.
  - Instructed classes in evaluation, measurement, research methods, and survey design with an emphasis on the application of data science techniques.
  - Mentored Masters and Doctoral students, guiding their academic pursuits and research activities.

2016  
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2014

- Data Analyst  
University of Kansas 📍 Lawrence, KS
  - Authored detailed evaluation reports, catering to the requirements of diverse stakeholders.
  - Conducted research and deployed predictive statistical models aimed at enhancing student retention and graduation efforts.
  - Developed web applications using Shiny and Tableau, facilitating extraction, summarization, and visualization of data from the organization's Oracle database.
  - Spearheaded comprehensive qualitative, quantitative, and mixed-methods studies and delivered presentations on findings.

## CONTACT INFORMATION

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- 📞 +1 304-554-9436
- 🆔 0000-0002-7085-8964

## EXPERTISE

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

**Data visualization**

**Markup using  $LAT_{E}X$**

**Program evaluations from planning to reporting**

**Quantitative, qualitative, and mixed method studies**

**R programming**

**Small- and large-scale survey design, administration, and research**

**Statistical modeling and analysis**

**Web application development and static/dynamic reporting using**



**WWW**



## SELECT PUBLICATIONS

- 2023 ● Is it accessible? Preservice teachers' access to computational thinking.  
*Contemporary Issues in Technology and Teacher Education*  
Kale U., Kooker, A., Yuan, J., & **Roy, A.** (accepted)
- 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://peer.asee.org/29592>
- 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://doi.org/10.56645/jmde.v8i19.372>



## 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 EVALUATIONS

- Current | 2023 • Healthy Start Initiative ([HRSA-19-049](#) Total Award: \$5,470,000)  
West Virginia University Research Corporation 📍 Morgantown, WV
  - *Lead Program Evaluator & Methodologist*
  - Building valid and reliable survey instruments to assess participant experiences.
  - Implementing process, monitoring, and impact evaluations of programmatic activities.
  - Utilizing mixed methods designs to study participant data.
- Current | 2022 • Teaching Science with Computational Thinking: Preparing Preservice Elementary Educators of the Future STEM Workforce ([2019-NSF 2142274](#) Total Award: \$294,958.00)  
West Virginia University 📍 Morgantown, WV
  - *Lead Program Evaluator & Mixed Methods Analyst*
  - Applying mixed methods text analysis of written and interview data using thematic analysis and various machine learning methods.
  - Constructing and validating survey instruments used to assess progress and programmatic impact.
  - Implementing process and impact evaluations of program activities.



## COMPLETED EVALUATIONS

- 2022 | 2017 • WVCTSI: West Virginia Clinical and Translational Science Institute ([2017-NIH 2U54GM104942-02](#) Total Award: \$20,000,000)  
West Virginia University 📍 Morgantown, WV
  - *Program Evaluator & Data Scientist*
  - Analyzed large data sets using frequentist and Bayesian methods.
  - Conducted local and multi-site multi-cluster evaluation studies.
  - Developed/validated items and distributing customized Qualtrics surveys built with CSS and Javascript.
  - Mentored future graduate social data scientists.
  - Pulled, wrangled, and visualized secondary data
- 2020 | 2021 • Appalachian Gerontology Experiences - Advancing Diversity in Aging Research ([2020-NIH 1R25AG059558-01A1](#) Total Award: \$678,000)  
West Virginia University 📍 Morgantown, WV
  - *Lead Program Evaluator*
  - Developed and distributing customized Qualtrics surveys built with CSS and Javascript.
  - Performed various evaluative studies addressing program efficacy and engagement.

- 2020  
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2022

● Research Initiative: A Holistic Cross-Disciplinary Project Experience as a Platform to Advance the Professional Formation of Engineers ([2019-NSF 1927232](#) Total Award: \$200,000)  
West Virginia University 📍 Morgantown, WV

  - *Methodological Advisor & Research Specialist*
  - Mentored engineering faculty and graduate students on the implementation of research methods.
  - Conducted quantitative and qualitative studies on undergraduate student experiences within grant related programs.
- 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 ([2017-ED H327S170012](#) Total Award: \$2,470,440)  
Pennsylvania State University 📍 State College, PA

  - *Lead Program Evaluator*
  - Administered product and program evaluations of existing tools and activities.
- 2018  
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2017

● Cultivating Inclusive Identities of Engineers and Computer Scientists: Expanding Efforts to Infuse Inclusive Excellence in Undergraduate Curricula ([2017-NSF 1725880](#) Total Award: \$2,000,000)  
West Virginia University 📍 Morgantown, WV

  - *Lead Program Evaluator*
  - Conducted personnel and program evaluations of existing members and interventions.
  - Created and implemented various text analysis methods.
- 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 ([2017-NSF 1450032](#) Total Award: \$3,013,779)  
Colorado State University 📍 Fort Collins, CO

  - *Lead Program Evaluator*
  - Conducted unstructured and semi-structured interviews and focus groups assessing participant experiences.
  - Implemented mixed methods evaluations to study program impacts on students and faculty.

## PRESENTATIONS

- 2022

● Let's Get Sentimental: Machine Learning Aided Data Analysis for Large Qualitative Data Sets  
*American Evaluation Association Annual Conference* 📍 New Orleans, LA  
Seidel, T., Ferguson, C.F., & **Roy, A.R.**
- 2022

● Best of Both Worlds: Affordances of Mixing Machine Learning and Qualitative Content Analysis  
*American Educational Research Association Annual Meeting* 📍 San Diego, CA  
**Roy, A.R.**, Ferguson, C.F., Curtis, R., & Babb-Richards, M.
- 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* 📍 virtual  
**Roy, A.R.**
- 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* 📍 Minneapolis, MN  
M, Loomis, D.L., Mikalik, T.L., Curtis, R., **Roy, A.R.**, & Bernstein, M.
- 2019

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

- 2019 ● The Value of External Evaluators When Building Clinical Translational Research Infrastructure.  
*American Evaluation Association Annual Conference* 📍 Minneapolis, MN  
 Curtis, R., **Roy, A.R.**, Bernstein, M, Loomis, D.L., & Mikalik, T.L.
- 2019 ● Using Associated Networks to Evaluate Content within Courses.  
*American Evaluation Association Annual Conference* 📍 Minneapolis, MN  
**Roy, A.R.**, Kale, U, & Yuan, J.
- 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 ● Content in the Background: Using Evaluation Theorists as the Principal Motivator for Foundational Evaluation Courses.  
*Hawaii-Pacific Evaluation Association Annual Conference* ● Kane'ohe, HI  
**Roy, A.R.** & Curtis, R.P.
- 2015 ● Survey Says! Students Getting Tired of Surveys.  
*National Academic Advising Association Annual Conference* ● Las Vegas, NV  
**Roy, A.R.** & Goetz, H.L.
- 2013 ● Influences of Hierarchical Linear Modeling in Evaluation.  
*Aotearoa New Zealand Evaluation Association Annual Conference* ● Auckland, NZ  
**Roy, A.R.** & Goetz, H.L.
- 2012 ● Survey sample methods: Evaluators' toolbox refreshment.  
*American Evaluation Association Annual Conference* ● Minneapolis, MN  
**Roy, A.R.** & Hobson, K.A.



## TEACHING EXPERIENCE IN EVALUATION AND METHODOLOGY (2016 - 2023)

- 2020 | 2018 ● Data Visualization  
 West Virginia University ● Morgantown, WV  
 2020, 2018
- 2017 ● Educational Psychology  
 West Virginia University ● Morgantown, WV  
 2017
- 2016 ● Educational Research  
 West Virginia University ● Morgantown, WV  
 2016
- 2022 | 2016 ● Introduction to Research  
 West Virginia University ● Morgantown, WV  
 2022, 2018, 2017, 2016
- 2020 | 2018 ● Measurement/Evaluation in Educational Psychology  
 West Virginia University ● Morgantown, WV  
 2022, 2020, 2018

2019   2017	● Mixing Research Methodologies West Virginia University 2022, 2019, 2018, 2017	📍 Morgantown, WV
2023   2017	● Program Evaluation West Virginia University 2023, 2022, 2021, 2020, 2019, 2018, 2017	📍 Morgantown, WV
2021   2017	● Social Network Analysis West Virginia University 2021, 2017	📍 Morgantown, WV
2021   2017	● Statistical Methods 1 West Virginia University 2021, 2020, 2019, 2018, 2017	📍 Morgantown, WV
2020   2022	● Survey Design West Virginia University 2022, 2020	📍 Morgantown, WV



## TEACHING EXPERIENCE IN MATHEMATICS (2005 - 2015)

2008	● Business Calculus Central Michigan University	📍 Mount Pleasant, MI
2009	● College Algebra Central Michigan University	📍 Mount Pleasant, MI
2012	● Discrete Mathematics Pittsburgh State University	📍 Pittsburgh, KS
2014	● Elementary Statistics Pittsburgh State University	📍 Pittsburgh, KS
2010   2009	● Foundations of Statistics Pittsburgh State University 2009, 2010	📍 Pittsburgh, KS
2008   2007	● Intermediate Algebra Central Michigan University 2007, 2008	📍 Mount Pleasant, MI
2007	● Integral Calculus Michigan Technological University	📍 Houghton, MI
2015   2014	● Linear Algebra University of Kansas 2014, 2015	📍 Lawrence, KS
2013	● Mathematical Thinking Grades 6-12 Western Michigan University	📍 Kalamazoo, MI

2014  
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2013

● Mathematics Curriculum Grades 6-12  
Western Michigan University  
2013, 2014

📍 Kalamazoo, MI

2005

● Multivariable Calculus  
Michigan Technological University

📍 Houghton, MI

2007  
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2006

● Single Variable Calculus  
Michigan Technological University  
2006, 2007

📍 Houghton, MI

## SERVICE

2022  
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2013

● Associate Editor  
*Journal of MultiDisciplinary Evaluation*

## MEMBERSHIPS

2022  
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2012

● American Evaluation Association