Nicholas T. Young

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Education

Michigan State University

PhD in Physics, Computational Mathematics, Science, and Engineering — 2021
Dissertation: *The Past, Present, and Future of Graduate Admissions in Physics*
Advisor: Marcos "Danny" Caballero

MS in Physics — 2020

Ohio State University

BS in Physics and Astronomy/Astrophysics — 2017

Appointments

Assistant Professor

Department of Physics & Astronomy, University of Georgia — 2023-

Postdoctoral Fellow

Center for Academic Innovation, University of Michigan — 2021- 2023

Publications

Peer-Reviewed Journal Articles

10. **Nicholas T. Young**, Mark Mills, Rebecca L. Matz, Eric F. Bell, Caitlin Hayward. Exploring how complex multiple-choice questions could contribute to inequity in introductory physics. *PLOS ONE*. 2025
9. **Nicholas T. Young**, Rebecca L. Matz, Eric F. Bell, Caitlin Hayward. How researchers calculate students' grade point average in other courses has minimal impact *PLOS One*, 2023
8. **Nicholas T. Young**, N. Verboncoeur, Dao Chi Lam, Marcos D. Caballero. Rubric-based holistic review represents a change from traditional graduate admissions approaches in physics *Physical Review Physics Education Research*, 19:010134, 2023
7. **Nicholas T. Young**, K. Tollefson, Remco G. T. Zegers, Marcos D. Caballero. Rubric-based holistic review: a promising route to equitable graduate admissions in physics *Physical Review Physics Education Research*, 18:020140, 2022
6. **Nicholas T. Young**, Marcos D. Caballero. Predictive and explanatory models might miss informative features in educational data. *Journal of Educational Data Mining*, 13 (4), 2021
5. **Nicholas T. Young**, Marcos D. Caballero. Physics Graduate Record Exam does not help applicants "stand out." *Physical Review Physics Education Research*, 17:010144, 2021

4. Nils J. Mikkelsen, **Nicholas T. Young**, Marcos D. Caballero. Investigating institutional influence on graduate program admissions by modeling physics Graduate Record Examination cutoff scores. *Physical Review Physics Education Research*, 17:010109, 2021
3. Dehui Hu, Kingston Chen, Anne E. Leak, **Nicholas T. Young**, Brianna Santangelo, Benjamin M. Zwickl, and Kelly Norris Martin. Characterizing mathematical problem solving in physics-related workplaces using epistemic games. *Physical Review Physics Education Research*, 15:020131, 2019
2. **Nicholas T. Young**, Grant Allen, John M. Aiken, Rachel Henderson, and Marcos D. Caballero. Identifying features predictive of faculty integrating computation into physics courses. *Physical Review Physics Education Research*. 15:010114, 2019
1. **Nicholas T. Young** and Andrew F. Heckler. Observed hierarchy of student proficiency with period, frequency, and angular frequency. *Physical Review Physics Education Research*. 14:010104, 2018

Peer-Reviewed Conference Proceedings

7. Rebecca L. Matz, **Nicholas T. Young**, Caitlin Hayward. Faculty Interpretations of Course Equity Data. *American Educational Research Association* 2023 Annual Meeting, 2023
6. **Nicholas T. Young**, Briley L. Lewis, Emily Kerr, Prasanth H. Nair. Using blogs to make peer-reviewed research more accessible. Submitted to *Proceedings of the 2022 Physics Education Research Conference*, 2022
5. Sarah Jane Bork, **Nicholas T. Young**, Joi-Lynn Mondisa. Exploring the Relationship Between Culture and Science, Engineering, and Mathematics Graduate Students' Mental Health. *American Association of Engineering Educations Annual Conference*, 2022
4. **Nicholas T. Young** and Marcos D. Caballero. Using Machine Learning to Understand Physics Graduate School Admissions. In *Proceedings of the 2019 Physics Education Research Conference*, 2019
3. **Nicholas T. Young**, Brianna Santangelo, Kelly Norris Martin, Anna E. Leak, and Benjamin M. Zwickl. Models of Math Use in Non-Academic Workplace Settings. In *Proceedings of the 2017 Physics Education Research Conference*, 2017
2. Brianna Santangelo, **Nicholas T. Young**, Anna E. Leak, Kelly Norris Martin, and Benjamin M. Zwickl. Integration of mathematics and communication in physics-intensive workplaces. In *Proceedings of the 2017 Physics Education Research Conference*, 2017
1. J. R. Smith, A. Byrum, T. M. McCormick, **Nicholas T. Young**, Christopher Orban, and C. D. Porter. A Controlled Study of Stereoscopic Virtual Reality in Freshman Electrostatics. In *Proceedings of the 2017 Physics Education Research Conference*, 2017

Under Review Journal Articles

1. Montserrat Valdivia Medinaceli, Victoria S. Farrar, **Nicholas T. Young**, Emily Bonem, Chris Mead, Stefano Fiorini, Rebecca L. Matz, Natalia Caporale. Equity gaps associated with student demographics persist into upper-division biology courses across multiple institutions

Awards and Fellowships

- Best student paper, American Society of Engineering Educators Annual Conference — 2022
- Best platform presentation by visiting researcher, Wayne State University Graduate Research Symposium — 2022
- Physical Review PER Editor's Suggestion: Physics Graduate Record Exam does not help applicants "stand out" — 2021
- American Association for the Advancement of Science Mass Media Fellowship — 2021
- Michigan State University College of Natural Science Dissertation Completion Fellowship — 2021
- Michigan State University Hub for Innovation in Learning and Technology Graduate Fellowship — 2020
- Physics Education Research Conference Proceedings Notable Paper — 2019
- Michigan State University College of Natural Science Recruiting Fellowship — 2017

Invited Talks

Conference Talks

4. **Nicholas T. Young** and Marcos D. Caballero. Toward a More Equitable and Effective Physics Graduate Admissions Process. 55th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics — 2024
3. **Nicholas T. Young**. Making your science understandable. American Physical Society March Meeting — 2022
2. **Nicholas T. Young**, Grant Allen, John M. Aiken, Rachel Henderson, and Marcos D. Caballero. Why physics instructors choose to include computation in their courses. Partnership for Integrating Computation into Undergraduate Physics (PICUP) Capstone Conference — 2021
1. **Nicholas T. Young**, Marcos D. Caballero. Addressing Rare Outcomes in PER Quantitative Studies. American Association of Physics Teachers Winter Meeting — 2021

Colloquium

2. Transforming Physics Graduate Education: From Equitable Admissions to Student Success, Rochester Institute of Technology — 2025

1. Toward a More Equitable and Effective Physics Graduate Admissions Process. Departmental Colloquium, University of Oklahoma — 2023

Conference activity

Contributed Talks (presenting author only)

10. **Nicholas T. Young**, Christopher Overton, Ania Majewska, Hina Shaikh, Nandana Weliweriya. Using large language models to summarize student feedback. APS Global Physics Summit, Anaheim, California — 2025
9. **Nicholas T. Young**, Rebecca L. Matz, Eric Bell, and Caitlin Hayward. Investigating the impact of post-exam grade-adjustment practices in introductory physics. American Association of Physics Teachers Summer Meeting, Boston, Massachusetts — 2024
8. **Nicholas T. Young**. Using Random Forest to Study Physics Graduate School Admissions. Physics Education Research Conference, Grand Rapids, Michigan — 2022
7. **Nicholas T. Young**, Mark Mills, Rebecca L. Matz, Eric Bell, and Caitlin Hayward. Who Answers Complex Multiple-choice Questions in Physics Correctly? American Association of Physics Teachers Summer Meeting, Grand Rapids, Michigan — 2022
6. **Nicholas T. Young**, Rebecca L. Matz, Heather Rypkema, Susan Cheng, Holly Derry, W. Carson Byrd, Ben Koester, Eric Bell, and Caitlin Hayward. Developing Course Equity Reports to Understand and Reduce Inequity in University of Michigan Classes. Data for Public Good Symposium, Ann Arbor, Michigan — 2022
5. **Nicholas T. Young**, Nicole Verboncoeur, Marcos D. Caballero. Rethinking Physics Graduate Admissions for a Post-Covid World. American Physical Society April Meeting (virtual) — 2021
4. **Nicholas T. Young**, Marcos D. Caballero. The Physics GRE does not help "overlooked" applicants. American Association of Physics Teachers Summer Meeting (virtual) — 2020
3. **Nicholas T. Young**, Marcos D. Caballero. Using Machine Learning to Understand Physics Graduate School Admissions. American Association of Physics Teachers Summer Meeting, Provo, Utah — 2019
2. **Nicholas T. Young**, Marcos D. Caballero. Using Machine Learning to Predict Integrating Computation into Physics Courses. American Association of Physics Teachers Summer Meeting, Washington D.C — 2018
1. **Nicholas T. Young**, Andrew F. Heckler. Modeling Student Understanding of Period, Frequency, and Angular Frequency. American Association of Physics Teachers Summer Meeting, Cincinnati, Ohio — 2017

Poster Presentations (presenting author only)

17. **Nicholas T. Young**, Christopher Overton, Ania Majewska, Hina Shaikh, Nandana Weliweriya. Using large language models to summarize student feedback. APS Global Physics Summit, Anaheim, California 2025
16. **Nicholas T. Young**. Exploring how physics and astronomy graduate programs describe their culture using natural language processing. Physics Education Research Conference, Boston, Massachusetts 2024
15. **Nicholas T. Young**, Rebecca L. Matz, Eric Bell, and Caitlin Hayward. Investigating the impact of post-exam grade-adjustment practices in introductory physics. American Association of Physics Teachers Summer Meeting, Boston, Massachusetts 2024
14. **Nicholas T. Young**, Using generative artificial intelligence to make course materials more visually engaging in STEM courses. University System of Georgia Teaching and Learning Conference 2024
13. **Nicholas T. Young**, Rebecca L. Matz, Eric Bell, and Caitlin Hayward. Does it matter how we calculate the grade point average in other courses? SEISMIC Summer Meeting 2023
12. **Nicholas T. Young**, Eric Bell, Carson Byrd, Susan Cheng, Nate Credit, Holly Derry, Rashonda Flint, Caitlin Hayward, Ben Koester, Steve Lonn, Rebecca L. Matz, Mark Mills, and Heather Rypkema. Developing a 'Program Equity Report'. SEISMIC Summer Meeting 2023
11. **Nicholas T. Young**, Briley L. Lewis, Emily Kerr, Prasanth H. Nair. Using blogs to make peer-reviewed research more accessible. Physics Education Research Conference, Grand Rapids, Michigan 2022
10. **Nicholas T. Young**, Mark Mills, Rebecca L. Matz, Eric Bell, and Caitlin Hayward. Who Answers Complex Multiple-choice Questions in Physics Correctly? American Association of Physics Teachers Summer Meeting, Grand Rapids, Michigan 2022
9. **Nicholas T. Young**, Aalayna Green, Caroline Blommel, Ellie Louson. Developing a Faculty-Facing Resource for Experiential Interdisciplinary Undergraduate Teaching, xDBER (virtual) 2021
8. **Nicholas T. Young**, Marcos D. Caballero. Addressing Rare Outcomes in PER Quantitative Studies. American Association of Physics Teachers Winter Meeting (virtual) 2021
7. **Nicholas T. Young**, Marcos D. Caballero. The Physics GRE does not help "overlooked" applicants. American Association of Physics Teachers Summer Meeting (virtual) 2020

6. **Nicholas T. Young**, Marcos D. Caballero. Using Machine Learning to Understand Physics Graduate School Admissions. American Association of Physics Teachers Summer Meeting, Provo, Utah — 2019
5. **Nicholas T. Young**. PERbites. Communicating Science Conference – American Institute of Physics, College Park, Maryland — 2019
4. **Nicholas T. Young**, Marcos D. Caballero. Using Machine Learning to Predict Integrating Computation into Physics Courses. American Association of Physics Teachers Summer Meeting, Washington D.C — 2018
3. **Nicholas T. Young**, Marcos D. Caballero. Using Machine Learning to Predict Integrating Computation into Physics Courses. Spring Meeting of the APS Ohio-Region Section and the AAPT Michigan Section, East Lansing, Michigan — 2018
2. **Nicholas T. Young**, Andrew F. Heckler. Modeling Student Understanding of Period, Frequency, and Angular Frequency. American Association of Physics Teachers Summer Meeting, Cincinnati, Ohio — 2017
1. **Nicholas T. Young**, Brianna Santangelo, Kelly Norris Martin, Anne E. Leak, Benjamin M. Zwickl. Models of Math Use in Non-Academic Workplace Settings. Physics Education Research Conference, Cincinnati, Ohio — 2017

Popular press

5. **Nicholas T. Young**, Caitlin Hayward, Eric F. Bell. The gap between physics bachelor's recipients and grad school spots is growing *Physics Today* — 2023
4. **Nicholas T. Young**, Kirsten Tollefson, Marcos D. Caballero. Making graduate admissions in physics more equitable *Physics Today* — 2023
3. **Nicholas T. Young**, Heather Rypkema, Eric Bell. Leveraging Institutional Data to Advance Equity in STEM Courses *American Association for the Advancement of Science (AAAS) Improving Undergraduate STEM Education (IUSE) blog* — 2022
2. **Nicholas T. Young**. Eliminating the GRE *Physics Today* — 2021
1. **Nicholas T. Young**.I know some algorithms are biased-because I created one *Scientific American* — 2019

Supervised personnel

Graduate Students (Main supervisor)

2. David Seiden (University of Georgia; co-advised with Nandana Weliweriya) — 2025-
1. Christopher Overton (University of Georgia) — 2024-

Undergraduate students supervised on research

9. Cavin Lee (University of Georgia) — 2025-
8. Shingo Badstibner (University of Georgia) — 2025-
7. Kai Ramlochan (University of Georgia) — 2024-

	6.	James Squires (University of Georgia; co-advised with Nandana Weliweriya)	2024-
	5.	Julia Marchese (University of Michigan)	2022-2023
	4.	Chi Dao Lam (Michigan State University)	2020-2021
	3.	Nicole Verboncoeur (Michigan State University)	2020-2021
	2.	Tabitha Hudson (Michigan State University)	2020
	1.	Nils Johannes Mikkelsen (University of Oslo)	2019-2021
Teaching experience	2.	Introduction to Scientific Programming, Data Analysis, and Visualization for Physicists (University of Georgia)	FA24
	1.	Introductory Studio Physics for Engineers I (University of Georgia)	FA23, FA24
Service and outreach	•	American Association of Physics Teachers Committee on Graduate Education in Physics member	2020-
	•	Peer Reviewer *Physical Review Physics Education Research*	2022-
	•	Peer Reviewer *Physics Education Conference Proceedings*	2017-
	•	PERbites blog writer and editor in chief	2018-2023
	•	2023 APS Graduate Education Conference steering committee member	2022-2023
	•	Cientifico Latino Graduate School Mentorship Initiative mentor	2019-2022
Training and certifications	6.	Rackham Professional Development Diversity, Equity, and Inclusion Certificate	2023
	5.	MSU Knight Center for Environmental Journalism's Science Communication Workshop	2020
	4.	MSU Graduate School Science Writing for News Outlets	2020
	3.	Certificate in Science Communication, Center for Interdisciplinary Exploration and Research in Astrophysics, Northwestern University	2019
	2.	Michigan State University Digital Presences and Public Scholarship Fellows Program Blogging Workshop	2019
	1.	Certificate in Inclusive Inquiry STEM Education, Institute for Scientist & Engineer Educators, University of California Santa Cruz	2019