Mentoring Program to Support NSF Grant Proposals by MSI Faculty

Dear sir or madam,

I am Alfredo A. Romero, associate professor at North Carolina A&T State University, the largest HBCU in the country. I am an applied econometrician with research interests on machine learning and macroeconomic fluctuations. I have never applied for a grant to the NSF, but I was awarded a grant as Co-PI to the NC Policy Collaboratory. This document includes my cover letter, followed by my resume, and the description of two projects is found on the very last page. The Dean of the Willie A. Deese College of Business and Economics, Kevin James, can attest to the presence of institutional support for grant applications to the NSF and other entities. Below you will find his contact information.

1. Applicant's contact information

   Dr. Alfredo A. Romero
   Associate Professor
   Department of Economics
   North Carolina A&T State University
   1601 E Market Street
   Greensboro, NC 27411
   aaromero@ncat.edu
   (336) 285-3344

2. Research field of interest

   Applied Econometrics. Machine Learning. Macroeconomic Fluctuations.

3. List of past grant applications to the NSF and other external organizations (please do not include applications to funding sources at the home institution)

   - None to the NSF
   - One to NC Policy Collaboratory

4. Contact information for a dean or other senior administrator who can attest to the presence of institutional support for grant applications to the NSF and other entities

   Kevin L. James, Ph.D., CPA
   Dean, Willie A. Deese College of Business and Economics
   North Carolina A&T State University
   401 Craig Hall
   1601 East Market Street
   Greensboro, NC 27411
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EDUCATION

Virginia Polytechnic Institute and State University, Blacksburg, Virginia
Ph.D. Economics, 2010
M.A. Economics, 2006

Texas Tech University, Lubbock, Texas
M.A. Economics, 2004

Universidad de las Americas-Puebla, Mexico
B.A. Economics, 2002

PERMANENT APPOINTMENTS

North Carolina A&T State University, Greensboro, North Carolina
Associate Professor of Economics — 2016-Present
Department of Economics

North Carolina A&T State University, Greensboro, North Carolina
Assistant Professor of Economics — 2010-2016
Department of Economics

The College of William and Mary, Williamsburg, Virginia
Visiting Instructor of Economics — 2007-2010
Department of Economics and The Thomas Jefferson Program in Public Policy

RELEVANT SERVICE AND OTHER ACADEMIC EMPLOYMENT

1. **Wall Street Journal**, Wall Street Journal Forecasting Survey — 2021 - Present
   Panel Member
2. **Department of Economics**, NCAT — Fall 2020
   Department Co-Chair
3. **Wiley's Advisory Panel**, The Wiley Business, Education & Career Team — 2020
   Member
4. **Hispanic Economic Outlook**, American Society of Hispanic Economists — 2017 - Present
   Committee Member
5. **Student-Managed Investment Fund**, College of Business and Economics, NCAT — 2016-2017
   Faculty Co-Advisor
6. **Aggie Economics Association**, Department of Economics, NCAT — 2013-2014
   Faculty Co-Advisor
7. **Student-managed Endowment for Educational Development**, Virginia Tech — 2007-2008
   Portfolio Manager and Economic Advisor
8. **College of Business Management**, Puebla, Mexico — 2002
   Instructor
9. **Textbook Reviewer**: Business Statistics, Gregory Privitera, Sage
   Economics Principles: A Business Perspective, Rubb & Sumner, MacMillan
   Foundations of Microeconomics, 6th edition, Bade & Parkin
   Modeling Macroeconomic Principles using Maple, Hal W. Snarr
   A Beginner's Guide to Economic Research and Presentation, J.A. Edwards

Principles of Economics, Texas Tech University, 2004

PEER-REVIEWED PAPERS

1. **Romero, Alfredo A.** (2021) "Using the Entirety of the Term Structure to Forecast Recessions" *Research in Applied Economics*, 13(4).
2. **Romero, A.A.** & Edwards, J.A. (2020) "Growth and Foreign Direct Investment Absorption across Cultural Dimensions" *International Journal of Social Economics*.
3. Edwards, J.A. and **A.A. Romero** (2020) "Volatility, Island Nations and Small States" *Economics and Business Letters*.
4. Kelly, Stephanie E., **Alfredo A. Romero**, et al. (2020) "Instructor misbehaviors and math anxiety" *Communication Reports*. 33(1): 27-40.
5. Kelly, Stephanie E. and **Alfredo A. Romero** (2019) "The Consequences of Sharing Invisible Chronic Health Conditions at Work: Implications for Business Communication Education and Training" *Business Communication Research and Practice* 2(1):13-21.
6. Edwards, Jeffrey A., Cephas B. Naanwaab, **Alfredo A. Romero** (2017) "Effect of FDI on Real per Capital GDP Growth: A Rolling Window Panel Analysis of 60 Countries, 1982-2011" *Applied Econometrics and International Development* 17(1).
7. Edwards, J.A., **A.A. Romero**, Zagros Madjd-Sadjadi (2016) "Foreign Direct Investment, Economic Growth and Volatility: A useful model for policymakers" *Empirical Economics*.
8. **Romero, Alfredo A.** and Hal Snarr. (2015) "Obstacles and Catalysts of Productive Mobility in the United States" *The Journal of Economics* 41(1).
9. Edwards, J.A.; **Romero, A.A.**; and Pumphrey, R.G. (2014) "Supporting the Development of Municipal Water Policy: A study of the United States with Implications for Other Nations" *Applied Econometrics and International Development* 14(2).
10. **Romero, Alfredo A.** (2014) "Where Do Moderation Terms Come from in Binary Choice Models?" *Central European Journal of Economic Modelling and Econometrics*.
11. Snarr, Hal W. and **Alfredo A. Romero** (2014) "Does the minimum wage make young adult labor more attractive to firms? A panel data analysis that controls for spatial heterogeneity" *International Journal of Social Ecology and Sustainable Development*.
12. **Romero, Alfredo A.** and Krishna M. Kasibhatla (2013) "Volatility Dynamics and Volatility Forecasts of Equity Returns in BRIC Countries" *Journal of Business & Economic Studies* 19(1).
13. **Romero, Alfredo A.** and Mark L. Burkey (2011) "Debt Overhang in the Eurozone: A Spatial Panel Analysis" *The Review of Regional Studies* 41, 49-63.

BOOKS, CHAPTERS, PROCEEDINGS, REPORTS AND EDITORIAL ARTICLES

1. **Romero, Alfredo A.** Multivariate Data Analytics and Econometrics: An Introduction with R Statistical Software (forthcoming) Business Expert Press, New York.
2. **Romero, Alfredo A.** (2020) "A Look into the Effects of COVID-19 on Hispanic Employment Expectations from the Household Pulse Survey" *Hispanic Economic Outlook.*
3. **Romero, Alfredo A.** (2019) "Some Stylized Facts on Hispanic Labor Supply After the Great Recession" *Hispanic Economic Outlook.*

INTERVIEWS AND PRESS COVERAGE

1. "El efecto the la inflación en los hogares latinos," La Voz de la Mañana, **Univision**, January 13, 2022.
2. "En casi 40 años EEUU no había registrado una inflación tan alta," by Laura Sepúlveda Arcila, **Voz de America**, January 12, 2022.
3. "La inflación y alza de precios en energía y gas afecta particularmente a latinos, advierten expertos," by Jesús García, **El Diario**, January 12, 2022.
4. "Creciente costo de energía afecta desproporcionadamente a latinos en EEUU," **Agencia EFE**, January 12, 2022.
5. "Predictions!" **Planet Money from NPR**, 18 June 2021, https://www.npr.org/2021/06/17/1007813310/predictions.

6. "U.S. Unemployment Claims Reach New Pandemic Low," by Bryan Mena, **The Wall Street Journal**, 7/02/21.
7. "What do yesterday's riots mean for our economy? A North Carolina A&T economics professor weighs in," by Eric Chilton, **WFMY News 2**, 1/07/21.
8. "U.S. Unemployment Claims Remain Elevated While Consumer Demand Boosts Goods Imports," by Eric Morath, **The Wall Street Journal**, 1/07/21.
9. "Preliminary results of NC A&T study show economic impact of Covid-19 in Triad," By Trajan Warren, **Triad Business Journal**, 11/25/20.
10. "U.S. Jobless Claims Fell to 787,000 Last Week," by Eric Morath, **The Wall Street Journal**, 10/22/20.
11. "Latino Americans Were One of the Economy's Biggest Growth Engines. The Pandemic Is Changing That," by Neil Templin, **Barron's**, 09/18/20.
12. "How much is your N.C. A&T degree worth?" by Lango Deen, **US Black Engineer**, 08/24,20.
13. "Recession Led by Services Sector Is Particularly Painful for Latino Workers," by Harriet Torry, **The Wall Street Journal**, 07/05/20.
14. "N.C. A&T, WSSU each to get $1M to respond to COVID-19," by John Newsom, **News & Record**, 06/11/20.

GRANTS AND AWARDS

1. **Co-PI** for NC Policy Collaboratory, "Economic Impact of COVID-19 in the Piedmont Triad Region," 2020. Awarded.
2. **Co-PI** for North Carolina A&T State University, School of Business and Economics Mini grants, "Predictors of Health Communication Disclosures and Deceptions among Workers with Non-Obvious Medical Conditions," 2016. Awarded.
3. **Co-PI** for North Carolina A&T State University, School of Business and Economic Mini grants, "Motives for Intergenerational Transfers to Adult Children and Their Role in Wealth Inequality Amongst Non-White Populations," 2016. Awarded.
4. School of Business and Economics **Junior Faculty Teaching Excellence Award**, 2016. North Carolina A&T State University.
5. **Field-Tester** for National Science Foundation, "The Math You Need, When You Need It," 2012.
6. Graduate Student Summer Research Grant, Virginia Tech, 2008.
7. The Chancellor Scholarship, Texas Tech University, 2002.

INVITED TALKS

1. "Economic Update" at the North Carolina Local Government Budget Association Winter Conference, 2021.
2. "U.N.I.T.Y in the Community - How to make an impact in community & economic engagement" at the "Pathways to Economic Recovery" Community & Economic Engagement Summit at N.C. A&T, 2021.
3. "Challenges and Opportunities for Economic Policy Research" at the Inclusive Research Excellence Roundtable. North Carolina A&T State University, 2021.
4. "Monetary Issues with Open Public Blockchain Systems" at the NCAT Blockchain Symposium, North Carolina A&T State University, 2020.
5. "Shapley and The Deferred Acceptance Algorithm" Omicron Delta Epsilon Seminar at North Carolina A&T State University, 2019.
6. "FDI Determinants" at the Banco de Guatemala's XXVII Ciclo de Jornadas Económicas, Guatemala, 2018.
7. "GRE Preparation: How to get Money for Graduate School" at North Carolina A&T State University's Economics Opportunity Day, 2015, 2016.
8. "Successful Research Strategies" at North Carolina A&T State University's Economics Seminar Class, 2015.
9. "Multiculturalism and Diversity" at North Carolina A&T State University, 2014.

10. "Preparing for the Unexpected" North Carolina A&T State University Spring Forum, Greensboro NC, 2013.
11. "The Fiscal Cliff: Causes and Challenges" North Carolina A&T State University Honor's Program Seminar Series, Greensboro NC, 2013.
12. "An Omnibus Misspecification Test for Linear Models" North Carolina A&T State University, Greensboro NC, 2010.
13. "An Omnibus Misspecification Test for Linear Models" The New School for Social Research, New York NY, 2010.
14. "An Omnibus Misspecification Test for Linear Models" Virginia Commonwealth University, 2010.
15. "An Omnibus Misspecification Test for Linear Models" The College of William and Mary, Williamsburg VA, 2009.
16. "Probabilistic Logit Models" The College of William and Mary, Williamsburg, VA, 2008

CONFERENCE PRESENTATIONS

1. "Social Norms and Growth" at the Missouri Valley Economic Association Annual Meetings, October 2017, Kansas City MO.
2. "The Effect of Economic Freedom on Origin-Destination Flows for Mexican Immigrants" at the Southern Regional Science Association Meeting, March 2014, San Antonio TX.
3. "Integration of Key Worldwide Money Market Interest Rates and the London Interbank Offered Rate: An Empirical Investigation" at the Missouri Valley Economic Association Annual Meetings, October 2013, Kansas City, MO.
4. "The Effect of Economic Freedom on Hispanic Migration Flows between U.S. States: A Spatial Analysis" at the Missouri Valley Economic Association Annual Meetings, October 2013, Kansas City MO.
5. "Job-Loss, Re-Employment, and Social Networks" at the Missouri Valley Economic Association Annual Meetings, October 2013, Kansas City MO.
6. "Where do Moderation Terms Come from in Binary Choice Models?" at the Missouri Valley Economic Association Annual Meetings, October 2012, Memphis TN.
7. "A Look into the Microeconomic and Macroeconomic Determinants of Productive Mobility in the United States" at the Missouri Valley Economic Association Annual Meetings, October 2012, Memphis TN.
8. "The Minimum Wage: Political Football or a Job Killing Beast?" at the Missouri Valley Economic Association Annual Meetings, October 2012, Memphis TN.
9. "Debt Overhang in the Eurozone: A Spatial Econometrics Approach" at the Southern Regional Science Association Meeting, March 2012, Charlotte NC.
10. "Minimum Wage Hikes and their Deleterious Effect on Youth Employment" at the Southern Regional Science Association Meeting, March 2012, Charlotte NC.
11. "The Dynamics and Interdependence of U.S. State Unemployment" at the Missouri Valley Economic Association Annual Meetings, October 2011, Kansas City MO.
12. "Volatility Dynamics of Equity Returns: The BRIC Countries" at the Missouri Valley Economic Association Annual Meetings, October 2011, Kansas City MO.
13. "An Omnibus Misspecification Test for Linear Models" at the Missouri Valley Economic Association Annual Meetings, October 2011, Kansas City MO.
14. "On the Specification of Beta Regressions for Modeling Rates and Proportions" at the Missouri Valley Economic Association Annual Meetings, October 2010, St. Louis MO.

COURSES TAUGHT

As Lead Instructor: Managerial Economics (Undergraduate and Master Level), Elementary Statistics, Advanced Statistics, Microeconomics of Public Policy (Undergraduate and Master Level), Econometrics (Undergraduate and Master Level), Intermediate Microeconomic Theory, Principles of Microeconomics, Principles of Macroeconomics, History of Economic Thought, Economics and Society.

As Graduate Instructor: Money and Banking, Principles of Macroeconomics and Microeconomics.

AFFILIATIONS

As Editor: Research in Applied Economics.
As Referee: The FinTech Center, Economic Modelling, The Journal of Economics, The Journal of Applied Statistics, Journal of Family and Economic Issues, Applied Econometrics and International Development, Academy of Economics and Finance Journal, Journal of African Business, Australian Journal of Agricultural and Resource Economics, Research in Applied Macroeconomics.
As Committee Member: Hispanic Economic Outlook, 2017-Present.
As Member: NEED Delegate, Beta Gamma Sigma, Missouri Valley Economic Association, Southern Regional Science Association, American Society of Hispanic Economists, Diversity Initiative for Tenure in Economics.

NON-ACADEMIC EMPLOYMENT

1. **Sistema Operador de Carreteras de Cuota** (Toll Road System), Puebla, Mexico 2001-2002
   Economic Analyst
2. **El Banco de Mexico (Bank of Mexico)**, Mexico City, Mexico 2000
   Economic Analyst Intern

TRAINING AND CERTIFICATION

- Workshop: Asset Management with Matlab, 2021
- Workshop: Machine Learning and Credit Risk Analysis with MATLAB, 2021
- Workshop: Using MATLAB to Develop and Deploy Financial Models, 2021
- Workshop: IMPLAN Workshop, IMPLAN, 2020
- Workshop: Degree Works Training, North Carolina A&T State University, 2020
- Certificate: Data Science Professional Certificate, HarvardX, 2020 (88% completed)
- Certificate: Python Data Science Professional Certificate, IBM, 2020 (60% completed)
- Workshop: Triangle Economics of Education Workshop, Duke University, 2019
- Workshop: Preventing Discrimination and Sexual Violence: Title IX, VAWA and Clery Act for Faculty and Staff, North Carolina A&T, 2019
- Workshop: North Carolina Government Data Analytics Center (GDAC), Duke University, 2019
- Workshop: Conquering the Grade Center, North Carolina A&T State University, 2018
- Workshop: Online Course Development, North Carolina A&T State University, 2018
- Workshop: Program Evaluation 101, Multi-Scale Evaluation in STEM Education, North Carolina A&T State University, 2018
- Workshop: Philanthropy 101, Working with University Advancement, North Carolina A&T State University, 2018
- Conference: Kentucky Teaching in Economics Conference, 2017
- Conference: 16th Annual Economics Teaching Workshop, UNCW, 2017
- Workshop: Implicit Bias Training, North Carolina A&T State University, 2017
- Workshop: The Art of Giving and Receiving Feedback, North Carolina A&T SU, 2017
- Workshop: Best Practices for Designing Accessible E-Content, North Carolina A&T SU, 2017
- Workshop: Creating Interactive Lessons with SoftChalk, North Carolina A&T SU, 2017
- Workshop: Conquering the Grade Center, North Carolina A&T State University, 2017
- Workshop: Online-class Development, North Carolina A&T State University, 2016
- Workshop: Record Lectures with MediaSite, North Carolina A&T State University, 2016
- Workshop: Managing and Creating Exam using Respondus, North Carolina A&T SU, 2016
- Workshop: Office Mix, North Carolina A&T State University, 2016
- Workshop: Reappointment, Promotion & Tenure, North Carolina A&T State University, 2017
- Workshop: ArcGIS, 2015
- Workshop: Learning to Use the Teaching Engine Connect, 2015
- Workshop: Computational Economics, 2014
- Webinar: Data Analysis with MATLAB for Excel Users, 2014
- Webinar: Machine Learning with MATLAB, 2014

- Webinar: Advanced Analytics, 2014
- Online Class: Big Data and Social Physics, 2014
- Webinar: Top-Hat Student Response System, 2014
- Webinar: The Digital Difference. Engaging Students, Increasing Productivity, and Impacting Success, 2013
- Webinar: Flipping the Classroom: How to Turn Your Student's World Right-side Up, 2013
- Diversity Initiative for Tenure in Economics (DITE) Annual Workshop, Duke University, 2013
- Diversity Initiative for Tenure in Economics (DITE) Annual Workshop, Duke University, 2012
- Workshop: Make Clickers Work for You, North Carolina A&T State University, 2011
- Workshop: 4th Critical Thinking Institute for Faculty: Teaching and Learning, 2011
- Conference: 6th Annual Economics Teaching Conference, 2010
- Creating Quality Rubrics Workshop, North Carolina A&T State University, 2010
- Living in the Knowledge Society Workshop at Virginia Tech University, 2008
- Human Subjects Protection Certificate at Virginia Tech University, 2005
- Teaching in Economics Workshop at Texas Tech University, 2004
- Teaching in Economics Workshop at Texas Tech University, 2003
- International Teaching Assistant Workshop at Texas Tech University, 2002

ACADEMIC SERVICE

In Committees

- Member of the PTR Committee, Department of Economics, NCAT, 2021.
- Member of the Faculty Qualifications and Sufficiency Committee, NCAT 2021
- Member of the Assurance of Learning Committee, NCAT, 2020
- Member of the COBE Search Committee, NCAT, 2020
- Member of the Department of Economics Search Committee, 2018-2020
- Chair of the Curriculum Committee, Department of Economics, NCAT, 2017-2022
- Chair of the RPT Committee, Department of Economics, NCAT, 2019-2020
- Member of the Department of Economics PTR Committee, 2018
- Member of the COBE Strategic Planning Committee, 2018
- Chair of the RPT Committee, College of Business and Economics, NCAT, 2016-2017
- Chair of the Search Committee, College of Business and Economics, NCAT, 2017
- Member of the Committee on Large Class Sizes, 2017
- Member of the Department of Economics Articulation Committee, 2016
- Member of the search committee for MBA Director and Chair of the Department of Marketing, Transportation, and Supply Chain Management, 2015
- Member of the SOBE Research Excellence Award Review Committee, 2015
- Member of the SOBE Faculty and Staff Sufficiency and Deployment Committee, 2014
- Member of the Assurance of Learning Committee since 2014
- Member of the Associate Dean Search Committee, 2014
- Member of the Student Success Action Group starting in 2013
- Faculty Senate, North Carolina A&T State University, 2012-2015
- Chair of the Search Committee, Department of Economics, 2011-2012

As Presenter or Discussant

- Moderator at the 2nd National HBCU Blockchain and FinTech Conference, 2021
- Presenter at the Economics Opportunity Day, 2016
- Presenter at North Carolina A&T State University's Economics Seminar Class, 2015
- Presenter at the Economics Opportunity Day, 2015
- Discussant at the Multiculturalism and Diversity Student/Faculty Panel, 2014
- Department of Economics Representative at the Fall Open House, 2014
- Department of Economic Representative at the CAE Academic Majors Fair, 2014

- Panelist and Speaker at the University Forum "Preparing for the Unexpected: Losing Your Job" in the Spring Semester of 2013
- Speaker at the Honor's Program Seminar Series "The Fiscal Cliff: Causes and Challenges" in the Spring Semester of 2013

As Advisor and Other

- Co-Coach of the State of North Carolina Undergraduate Research and Creativity Symposium Team, 2015
- Course Coordinator, Principles of Microeconomics, Department of Economics, 2014-2017
- Recruiter for the Department of Economics in the 2012-2013 academic year
- Marshal at the Fall 2012 Commencement Ceremony
- Academic Advisor for students in the Department of Economics, 2010-Present

REFERENCES

Dr. Scott Simkins, Chair and Associate Professor of Economics
Department of Economics, North Carolina A&T State University
1601 E Market Street, Greensboro NC 27405, (336) 285 3047 simkinss@ncat.edu

Dr. Jeff Edwards, Professor of Economics
Department of Economics, North Carolina A&T State University
1601 E Market Street, Greensboro NC 27405, (336) 285 3336 jaedwar2@ncat.edu

Project 1: "Creating a framework for increasing the statistical reliability of machine learning algorithms in the context of nowcasting with an application to the development of just-in-time macroeconomic policies using big data."

Project Description: The advent of vast amounts of data generated over the last two decades has led to the proliferation of machine learning algorithms attempting to make sense of the chaos and finding empirical regularities. Most of the time, these unsupervised routines rely on iteratively improving over loss functions until an optimal solution is found and an empirical regularity is achieved above a predefined threshold of precision. Unfortunately, in the quest for forecasting accuracy the researcher sacrifices statistical adequacy, making practically impossible to conduct reliable statistical inference and hindering the creation of theory-laden knowledge. The obvious consequence being the existence of biased and/or ineffective policy measures plagued with unintended consequences. The present project attempts to put forward a framework for embedding statistical inference into forecasting models produced by machine learning algorithms and asses their statistical adequacy and empirical reliability. This will be accomplished by delineating the implicit probabilistic assumptions behind LASSO regression-like models and compare and contrast the consequences of relaxing those assumptions in the pursuit of 'better' forecasts. Taking into account the probabilistic assumptions of this kind of models is nonexistent in the mainstream machine learning literature under the assumption that any kind of statistical testing becomes meaningless as the sample size approaches infinity. This is simply wrong. the project will demonstrate the consequences of this omission by applying state-of-the-art machine learning algorithms to macroeconomic policy models using big data.

Project 2: "Income Inequality, Inflation, and the Covid-19 Pandemic."

Project Description: Monetary and fiscal policy reactions to the Covid-19 pandemic attempted to soften the economic consequences of the health-crisis induced recession. As a result, the economic downturn was not only one of the shortest-lived in recent American economic history, but it also showed a faster employment recovery that the previous recession. An unintended consequence of the fast recovery was an inflation rate not seen over the last 40 years that has slowly trickled into wages, cause by a sudden labor shortage, and especially in industries most benefited by fiscal stimulus and relaxed monetary policy. And while economists and policy makers alike debate whether the recent spike in prices will be sustained in the long run, in the short run the consequences have already been felt disproportionally by the lower echelons of the income scale. However, if a Lewis turning point materializes and increases the wages of the industries most affected by Covid-19, this might cause a permanent shift in the distribution of income and exacerbate the divide between the highest and the lowest income quantiles.