Careers Pathways at the Intersection of Liberal Arts and Data Science

EVENT GUIDE

Thursday, October 19, 2017
7-8:30pm, Cox Hall Ballroom
Emory University

Sponsored By:
“Connecting Liberal Arts and Data Science”

“This Networking Night is a great opportunity for QSS students and others to hear from academics and industry professionals about how they leverage data in their work. Last year, connections I made at this event led to a summer internship and eventually a full-time job offer!” - Ryan Joye (Current Student)

“If any students are interested in public health or epidemiology (or the major in general), I could do a Skype chat with them or you can give out my email if they have any specific questions. I hope the event is a success!” - Kelly Broen (Alumna—Attending University of Michigan)

“The QTM coursework has definitely prepared me very well for the classes at Columbia.” - Davis DeRodes (Alumnus—Attending Columbia University)

“Please don’t hesitate to give my contact information out to any students who want to talk about potentially going down the data science/business analytics path.” - Lewis Pipkin (Alumnus—Attending University of Tennessee)

“PwC is going great! Being a QTM student has definitely helped me in my new job.” - Jesse Devlyn (Alumnus—working at PwC ATL)

“I hope the event is a success!” - Kelly Broen (Alumna—Attending University of Michigan)
Tips for Making the Most of the Career Pathways at the Intersection of Liberal Arts and Data Science Networking Night!

- This event happens just once each year and brings a multitude of professionals, alumni, and faculty together just to meet YOU - freshmen through seniors from ANY major or discipline wanting to explore entry points to data/research/analysis-related jobs and internships - let our guests help you gain a better vantage point into finding the right “fit” for your skills and interests.

- This is NOT a career fair, so guests won’t be standing behind tables - guests will be “stationed” near high-boys indicating who they are. Dr. Cliff Carrubba, Director of QTM, will give a brief introduction, followed by mingling that includes Q&A. There will be refreshments as well. No need to bring a resume, either. This “mixer” format is a lot of fun and makes meeting people less intimidating and more enjoyable for everyone!

- Use this Event Guide before arriving and throughout the evening. Taking time to identify people you’d like to talk to and questions you might have will help you to feel more at ease before you begin mingling. The information on the next few pages will provide you with some background information of the attending professionals as well as a basic breakdown of key pathways available to students pursuing QSS/AMS majors and those interested in quantitative career paths.

- Networking is nothing more than conversation between people getting to know one another. Your strategy? Simple. Take an active interest in your conversation partner! Smile, offer a firm handshake, and lead off by sharing your name and a few bits of information you think your listener might like to know about you (i.e. year in school, academic background, and potential career interests - keep it brief). Follow by indicating something about their background that interests you, and you’re off and running!

- I’ve introduced myself. What next? Listening is one of the best ways to engage. Questions might relate to the person, or their organization. Try one of the following: What attracted you to work for this company/organization? How would you describe the people and culture? What does an average day look like at work? Tell me about one of your favorite projects. What do you find most challenging/rewarding about this work? What opportunities exist for someone with my interests and strengths?

- Here are some additional sample questions you might ask a guest: What were you studying as an undergraduate? How did you get interested in this subject matter and specific role? What traits and skills are necessary to do well? What training or advanced degrees did you find necessary? What are the best ways I can gain experience?

- Still feeling nervous? Try watching others to see how they approach conversation. Don’t stand in single file... it’s quite okay to approach people already talking. Just form a semi-circle around the guest and you’ll benefit from hearing other students’ questions. This can feel awkward, so here are the steps: walk up at a polite distance, make eye contact with those talking, then listen and await a verbal OR nonverbal cue to join in. When someone makes eye contact, that’s your opportunity to politely break in and introduce yourself. Be sure to return the favor when others want to join in with you!

- Don’t spend all of your time talking to one person. Stretch your comfort zone and aim to meet multiple professionals. Keep conversations brief - a polite thank you (or a wave and smile if they are talking with others) is a good way to exit.

- Before leaving a conversation, it’s customary to ask a guest for a business card. This step is very important, because it allows you to reach out after the event - perhaps to request a one-on-one conversation in a less-crowded setting at a slower pace. TIP: It’s good etiquette to send a ‘thank you’ after this event, highlighting something memorable about your conversation. Building relationships is NOT a “one and done” - they take follow up and initiative to work.
Academic & Career Avenues
Areas of Interest & Examples in Data Science

What is Data Science?

Data is all around us, and it affects our everyday lives in ways we often take for granted. Google and Facebook analyze the content of our e-mails, searches, and posts, and then they use that data to target ads relevant to our interests. Amazon and Netflix track our online behavior, compare it to the behavior of other users, and recommend products and movies that suit our tastes - often with uncanny accuracy.

In an increasingly data-driven world, data influences all aspects of society - from our careers to our roles as citizens to our private lives. To thrive in this environment, you must be able to work with data, draw well-reasoned inferences from it, and effectively communicate your discoveries to broader audiences.

Industries & Career Paths

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<tr>
<th>Industry</th>
<th>Potential Careers &amp; Descriptions</th>
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<tr>
<td>Academia &amp; Institutional Research</td>
<td>• Literature scholars may borrow techniques from natural language processing, sentiment analysis, signal processing, and machine learning, to extract and compare the plot structures of novels and track how archetypes evolve from the 19th to the 20th century.</td>
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<td>• Historians may combine Geographic Information Systems (GIS) data with traditional historic sources, engaging in projects like examining the growth of railroads and their impact on the American West.</td>
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<td>• Musicians, linguists, and cognitive scientists use computational modeling to understand how infants learn to distinguish words from the other sounds in their environment and understand the content of thought.</td>
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<td>• Neuroscientists examine patterns of human brain activity in an attempt to uncover the biological bases of behavior.</td>
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<td>• Sociologists and political scientists uses computer simulations, artificial intelligence, statistical methods, and social network analysis to model and analyze human social behavior in organizations, cities, and social networks and to understand how this behavior effects society at large.</td>
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<td>• Institutional researchers consult with faculty and administrators to design, implement, and analyze (develop and run appropriate statistical methods) the results of surveys to understand the needs and composition of the institution.</td>
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<td>Business</td>
<td>• Morgan Stanley and other companies use big data to inform investments and make economic forecasts.</td>
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<td>• Most equity trading employs data algorithms that interpret signals from a variety of sources to gauge risk.</td>
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<td>• Marketing firms utilize customer surveys, analyze correlations between advertising outlays and increased revenues to make decisions, and engage in random sampling techniques to estimate market sizes.</td>
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<td>• Union Pacific Railroad uses thermometers, microphones, and ultrasounds to collect performance data on engines and identify equipment at risk for failure before repair costs are prohibitively expensive.</td>
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<td>• Ford hybrid cars generate and store about 25 GB of data per hour, affording Ford a better understanding of driver behavior. The can help Ford reduce accidents and vehicle maintenance costs.</td>
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<td>• Pymetric and others are using data to streamline the hiring process and diversify company workforce.</td>
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<td>Government &amp; Public Policy</td>
<td>• The Department of Education’s National Center for Education Statistics collects data on enrollment rates, test scores, graduation rates, student financial aid, and students and teachers to identify areas in need of the more support, funding, and attention.</td>
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<td>• NASA’s Center for Climate Simulation is home to 32 petabytes of climate data. This is used to track climate change, improve weather predictions, and increase awareness of severe weather.</td>
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<td>• Campaigns collect data on each voter and can target voters with statements on issues of specific importance to them.</td>
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## Industries & Career Paths (Continued)

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| **Health** | • **Doctors** rely on statistics to gauge the effectiveness of drugs and calculate life expectancy and chances of recovery.  
• **Epidemiologists** conduct statistical analyses on the spread and risk of diseases.  
• The Centers for Disease Control partnered with Google in 2008 after researchers found that spikes in Google searches for flu symptoms coincided with actual outbreaks. This partnership led to the launch of Google Flu Trends, a site that allows people to compare volumes of flu-related search activity against reported incidence rates on a map of their area.  
• **Hospitals** analyze patient records to predict which patients are likely to seek re-admission within a few months of discharge. Identifying these patients allows doctors to provide better long-term care, decreasing both hospital and patient costs due to re-admission. |
| **Law** | • **Litigators** are increasingly relying on data and statistics for decisions about discrimination claims, products liability, trademark dilution, forensic identification, anti-trust litigation, economic damages, and more  
• The Department of Justice relies on quantitative scientists to improve data security practices and responsible data stewardship of legal briefings and case law  
• **Law enforcement agencies** collect and analyze data on past crime to predict where crime activity will be more likely to occur and where to send more patrols to prevent crime |
| **Technology** | • **Google**, **Bing**, and others use quantitative methods to optimize their search engines and provide the best results for search terms.  
• **Tesla** is using data for the development of self-driving cars.  
• **Apple** and **Amazon** use quantitative approaches to design speech recognition software and like Siri and Alexa |
Soufiane Ahallal
**Senior Analyst in Operations Research in Revenue Management, American Airlines**
Soufiane Ahallal is a Senior Analyst at American Airlines working on the Operations Research team within Revenue Management. His daily job consists of building algorithms that forecast demand and optimize prices for all of American Airlines’ flights. He has been in this role for a little over two years. Prior to joining American, Soufiane was working on his Operations Research MS degree at Columbia University and graduated in December 2014. He also holds a MS in Applied Mathematics from *Ecole Polytechnique* school of Paris.

Weihua An
**Department of Sociology, Department of Quantitative Theory and Methods, Emory University**
Dr. Weihua An is Assistant Professor of Sociology and Quantitative Theory and Methods at Emory University. He completed his Ph.D. in Sociology and A.M. in Statistics at Harvard University. Prior to joining the Emory faculty, he was Assistant Professor of Sociology and Statistics at Indiana University and a faculty member of the Indiana University Network Science Institute and Data Science Academic Program. His main research areas are network analysis and causal inference. He can provide advice to students interested in quantitative social sciences, social media analytics, statistics, and data science.

Ginger Baxter
**Career Services (MS Business Analytics, Goizueta Business School)**
Experienced student-focused professional with a demonstrated history of success, Ginger Baxter leads the career connections for Goizueta Business School’s Master of Science in Business Analytics. Ms. Baxter is not only skilled in coaching, but also, she holds an Emory MBA, an MS in Risk Management and Insurance in Mathematical Risk Management from Georgia State University and an undergraduate degree in Economics from Sewanee: The University of the South. Ginger has strong community ties and volunteers with the American Red Cross, PowerMyLearning, and advocates honoring our intelligence community through the OSS Society. She holds a Lean Six Sigma black belt.

Brian Boland
**Director of Analytics & Insights, Oldcastle Materials**
Brian Boland is a Director for Analytics & Insights at Oldcastle Materials, part of the CRH group, the second largest building materials company in the world with over $30bn annual revenue, 90,000 employees, across 31 countries. He was recently involved in launching an internal Business Intelligence function within their US heavyside arm, Oldcastle Materials working closely with senior executives and industry leaders to enable dynamic data analytics to support business decisions, along with adding value and bottom line impact by converting data into a strategic asset.
Melissa Bolyard  
**Director, Institutional Research, Emory University**  
Melissa Bolyard is a self-described "data geek." She serves as director of institutional research (IR) in the provost's office at Emory. Her team collects and analyzes data for internal and external uses. For example, they supply statistics to national organizations such as the Association of American Universities Data Exchange (AAUDE) and the National Center for Education Statistics. They compile the annual President’s Dashboard, which assembles 50 metrics from 1,000 data points into a single report. She has a PhD in sociology, studied at Stony Brook University and Arizona State University and is originally from Benton Harbor, MI.

Stephanie Calhoun  
**Senior Analyst in Revenue Management, American Airlines**  
Stephanie Calhoun is a Senior Analyst at American Airlines. She currently works in Revenue Management on the Best Practice and Continuous Improvement Team. She manages recruiting, onboarding, and training. Her implementation of the "RM Boot Camp" training program earned recognition throughout the company. She follows the life cycle of an analyst for the business unit, and believes the success of the recruits is her best reward and accomplishment. When she's not working, she enjoys traveling with her family to ski, play golf, or finding the top 10 attractions at new destinations!

Cliff Carrubba  
**Department of Political Science The Institute for Quantitative Theory and Methods**  
Professor and Chair in the Political Science Department as well as Director of the Institute for Quantitative Theory and Methods (QTM). He specializes in comparative legislative and judicial politics, comparative institutions, European politics, and game theory. Current research projects include studies of legislative behavior and roll call vote analysis, the design and change of judicial institutions (with application to the European Court of Justice), and statistical tests of game theoretic models. He currently serves as the Director of the Centre for the Study of Law, Politics and Economics. Dr. Carrubba received a B.A. from Duke University and his Ph.D from Stanford University. He joined the Emory faculty in 2000.

Howard Chang  
**Department of Biostatistics and Bioinformatics, Emory University**  
Howard Chang is an Associate Professor in the Department of Biostatistics and Bioinformatics at the Rollins School of Public Health, Emory University. His research interest is in the analysis of spatial-temporal environmental and health data. Application areas have included air pollution, infectious disease, water quality, and climate science. He collaborates with scientists at the World Health Organization, the US Environmental Protection Agency, and the US Centers for Disease Control and Prevention. Dr. Chang received his PhD in Biostatistics from Johns Hopkins University, followed by a postdoctoral fellowship at the Statistical and Applied Mathematical Sciences Institute.
BettyAnn Chodkowski  
*Data Scientist, Healthcare Corporation of America*

BettyAnn is a data scientist in healthcare. She is committed to improving public health via predictive models that deliver better healthcare sooner. BettyAnn’s area of expertise is biomedical imaging, developed at NIH. She earned her MS in EE/Medical Imaging at George Washington University, DC. She completed two years of coursework toward a Biostatistics PhD at Rollins School of Public Health. At Vanderbilt’s School of Medicine, BettyAnn investigated the influence of brain function in childhood obesity, bringing together her skills in big data, biomedical imaging, statistics, programming, and story-telling. BettyAnn is especially excited about women's and girls’ involvement in STEM.

Jesse Devlyn  
*Transfer Pricing Analyst, PWC*

I am a first year Transfer Pricing analyst at PwC's Atlanta office. Transfer Pricing is a rapidly growing field that deals with consulting our clients on international tax policies with their abroad subsidiaries. In my role as a Transfer Pricing Analyst, I work with financial data along with domestic and international tax laws to figure out what the best international tax policy would be for our clients as they conduct business with their foreign subsidiaries. In a way, Transfer Pricing combines business with international relations, making it an exciting field to work in.

Byron Gamble  
*Senior Analyst in Operations Research in Revenue Management, American Airlines*

Byron Gamble is a Senior Analyst at American Airlines working on the Operations Research team within Revenue Management. His daily job consists of building algorithms that forecast demand and optimize prices for all of American Airlines’ flights. He has been in this role for a little over two years. Prior to joining American, Byron was working on his Operations Research MS degree at Virginia Tech. He also holds a BS in Industrial Engineering and Mathematics from the University of Wisconsin-Madison. In his free time Byron enjoys using his flight benefits to fly back to Madison, Wisconsin where he visits friends and family. His favorite hobby is curling (the sport with rocks and brooms on ice).

Taimur Ghaznavi  
*Manager, Fraud Investigation and Dispute Services, Ernst & Young, LLP*

Taimur manages eDiscovery and data analytics engagements and leverages his background in law and forensic technology to create defensible collection, analysis, and production strategies to mitigate the cost of responding to regulatory and litigation events. His unique legal experience at a boutique securities litigation firm and the Securities and Exchange Commission (SEC), coupled with over 5 years in the consulting field has helped Taimur become intimately familiar with both the legal and financial risks associated with fraud investigations. Taimur received his BA in Political Science from UGA and obtained his JD/MBA from Georgia State University.

Zhiyun Gong  
*Lecturer, Institute for Quantitative Theory and Methods, Emory University*

Dr. Gong came to Emory after serving at the University of Iowa as a visiting professor. Her research interests are in extreme value theory, actuarial science, time series analysis, and stochastic processes. She received her BS in Math and Statistics and her MS in Probability and Statistics from the Southwest Normal University in China. At Clemson University, Dr. Gong received her PhD in Mathematical Sciences.
Henry Hong  
*Business Intelligence Intern, Oldcastle Materials*  
Recent Emory University graduate (Spring 2017) who majored in Economics and Quantitative Sciences. Started working at Oldcastle Materials in June 2017.

Jeremey Jacobson  
*Lecturer, Institute for Quantitative Theory and Methods, Emory University*  
Jeremy Jacobson completed his PhD in Mathematics at Louisiana State University in 2012. During his PhD, he spent a year at the Mathematical Institute of the University of Bonn, Germany, and two years visiting the Warwick Mathematics Institute, UK. Previous to joining the Institute for Quantitative Theory and Methods, Dr. Jacobson was a Visiting Assistant Professor in the Department of Mathematics and Computer Science at Emory University. Prior to joining Emory, Dr. Jacobson taught at the University of Georgia and was a Fields Postdoctoral Fellow at the Fields Institute, Canada.

Sohel Khan  
*Manager, Ernst & Young, LLP*  
Dr. Sohel Khan is a Manager in the Ernst & Young LLC. He leads talented groups that apply Artificial Intelligence techniques to solve complex problems in accounting, finance, marketing, and technology. His current projects include FinTech, Blockchain, Robotic Automation, Digital Transformation, User Experience, Content Strategy, and IoT. He develops predictive and quant models applying advanced machine learning, deep learning/neural networks, natural-language processing, numerical optimization, and statistical algorithms.  
Dr. Khan has an MBA from Kellogg School of Management and PhD in Electrical Engineering from the University of Kansas. He has multiple US patents and professional journal publications.

Marcial Lapp  
*Director of Operations Research in Revenue Management, American Airlines*  
Marcial Lapp is the Director of the Operations Research team in Revenue Management. Marcial leads the group that is responsible for all the algorithms that drive the American Airlines Revenue Engine. Prior to joining American Airlines, Marcial worked on his Ph.D. in Operations Research at the University of Michigan. When not at work, Marcial spends his time traveling across the American Airlines network and thinking about the next big idea to extract consumer surplus.

Emery Lewis  
*Analyst II, Gas South*  
Emery Lewis is an Analyst II with Gas South. He has a proven ability to adapt to his environment, but he also has the drive to promote improvements to processes. As an Analyst, Emery has the opportunity to explore the ‘why’ behind the data and leveraging his intuition to guide his analyses. He also plays a critical role in business decisions, gets to work closely with company leadership, and makes a direct impact from day one. Emory is a 2002 Emory University BBA alum.
Zhongjian Lin  
*Department of Economics, Department of Quantitative Theory and Methods, Emory University*  
Dr. Lin is an assistant professor at the department of economics and the QuanTM at Emory university. He works on the econometrics methodology and discrete game for social interactions.

Paul Lisborg  
*Manager of Business Intelligence & Analytics, Oldcastle Architectural*  
A programmer by training, Paul Lisborg spent 2 decades programming software used by dentists, orthodontists, and oral surgeons. In 2003, Paul joined a small municipal utility company where he used the leading BI products of the day... Excel, Crystal Reports, and SSRS. In 2013, he joined Oldcastle Architectural Products Group as a Business Analyst and is now Manager of Business Intelligence and Analytics. He is a founding member of the Atlanta Tableau Users Group (ATUG) and frequently assists with managing and leading the group. Paul currently resides in Newnan, GA with his wife, Jennifer, and children Emma and Nathan.

Mary Lou McMenamy  
*Analyst, Employee Development in Revenue Management, American Airlines*  
Mary Lou McMenamy is an Analyst at American Airlines working on the Employee Development team within Revenue Management. Her daily job consists of maintaining the life cycle of an analyst, recruiting, and coordinating onboarding efforts for the Revenue Management department. She has been in this role for almost a year. Prior to American Airlines Mary Lou graduated from the University of North Texas with a Health Science Degree. In her free time she enjoys traveling with her husband, decorating her new house, and spending time with friends.

B. Pablo Montagnes  
*Department of Political Science, Department of Quantitative Theory and Methods, Emory University*  
B. Pablo Montagnes completed his PhD in Managerial Economics and Strategy at the Kellogg School of Management at Northwestern University in 2010. Prior to joining the faculty at Emory in 2015, Montagnes was an assistant professor at the Harris School of Public Policy at the University of Chicago. Montagnes’s primary research focus is formal political theory and political economy. His articles have been published in a number of leading journals including the Proceedings of the National Academy of Science (PNAS), the Journal of Public Economics and Political Science Research and Methods.

Dana Rickman  
*Director of Policy and Research, Georgia Partnership for Excellence in Education*  
Dr. Rickman is the Director of Policy at the Georgia Partnership for Excellence in Education. She was previously the Director of Research and Policy at the Annie E. Casey Foundation - Atlanta Civic Site. She has also worked for more than 10 years at Georgia State University conducting research on education programs within Georgia. She holds a PhD from Georgia State University in Political Science. She has authored multiple articles in peer reviewed journals and book chapters related to education policy and is the primary author of the Georgia Partnership’s annual Top Ten Issues to Watch report.
Dr. Justin Shepherd blends econometric tools with information technology to produce statistical estimates for program evaluation, behavioral modeling, and predictive analytics. His background focuses on quantitative research methods, survey research, and hypothesis testing. From this foundation, he integrates concepts from business intelligence, data visualization, and data sciences to turn data into actionable information. In particular, his work in higher education finance, enrollment management, and student success metrics have been featured in national conferences, published papers, and news media.

Kadeem Trimble
Consultant, Booz Allen Hamilton
Kadeem Trimble is a recent Emory College Class of 2017 graduate who majored in Quantitative Science (concentration in Sociology). He joined Booz Allen Hamilton consulting firm in July, where he is a consultant in the Financial and Economic division.

Jodi-Ann Wray
Senior Quantitative Risk Management Analyst, Federal Home Loan Bank of Atlanta
Jodi-Ann works in enterprise risk management focusing on regulatory stress testing, risk analytics, model development and enhancements, and credit risk management. Possessing strong quantitative and qualitative skills honed from her undergraduate, graduate, and professional work experience, she uses her skill set to problem solve and establish solutions, analyze and quantify key risk issues, and successfully communicate her findings in both written and verbal form.
Thank You For Attending