

# Adam Fleischhacker

ASSOCIATE PROFESSOR OF OPERATIONS MANAGEMENT & BUSINESS ANALYTICS

Dept. of Business Administration - University of Delaware

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## Professional Overview

- My tagline is “accelerating towards better outcomes using inspiration, insight, data & code.” I live and breathe how to use code to make better decisions and accelerate business processes.
- Author of “A Business Analyst’s Introduction to Business Analytics”, ranked 17<sup>th</sup> of “The 20 Best Bayesian Statistics Books of All Time” (<https://bookauthority.org/books/best-bayesian-statistics-books> as of Jan 13, 2023).
- Forthcoming book, “Persuasive Python: Unifying Narrative, Math, and Code”, will be even better than my previous book.
- “A Closed-Form EVSI Expression for a Multinomial Data-Generating Process”, is my best academic work to date. Forthcoming in *Decision Analysis* and available at <https://arxiv.org/pdf/2301.00729.pdf>. Answers the question of “how do you value data prior to seeing it?”
- Authored the `causact` package in R for simplifying Bayesian Analytics workflows. Available on the Comprehensive R Archive Network (CRAN), the package is downloaded over 200 times per month on average.
- I am an award winning teacher and strive to change my students lives for the better. See my YouTube channel, [https://www.youtube.com/channel/UCGJPwiM2\\_cjQdBMUsakipg](https://www.youtube.com/channel/UCGJPwiM2_cjQdBMUsakipg), for a taste of my teaching.
- I’ve worked and collaborated with great companies, making them even better as a result.
- Instrumental in launching data science degrees at the undergraduate, M.B.A., and Ph.D. levels.

## Current Position

### University of Delaware - Dept. of Bus. Adm.

Newark, DE

ASSOCIATE PROFESSOR OF OPERATIONS MANAGEMENT

2015-Present

- Faculty Council - Data Science Institute (2022-Present)
- JP Morgan Chase Faculty Fellow - Institute for Financial Services Analytics (2017-2022)
- JP Morgan Chase Faculty Scholar - Institute for Financial Services Analytics (2014-2017)

## Education

B. Sc.	Mechanical Engineering - State University of New York at Buffalo	1996
M.B.A.	Business Administration - University of Rochester - Simon Graduate School of Business	1998
Ph.D.	Supply Chain Management - Rutgers University - School of Business Newark and New Brunswick	2009

## Peer-Reviewed Journal Articles

1. Fleischhacker, A., Fok, P.-W., Madiman, M., & Wu, N. (2023). A closed-form EVSI expression for a multinomial data-generating process. *Decision Analysis*, forthcoming.
2. Fleischhacker, A. J., & Nguyen, T. H. N. (2022). Generative DAGs as an interface into probabilistic programming with the R package `causact`. *Journal of Open Source Software*, 7(76), 4415.
3. Cai, C., & Fleischhacker, A. (2022). The effect of loan debt on graduation by department: A Bayesian hierarchical approach. *Journal of Student Financial Aid*, 51(2), 5.
4. Fleischhacker, A., Ghonima, O., & Schumacher, T. (2020). Bayesian survival analysis for US concrete highway bridge decks. *Journal of Infrastructure Systems*, 26(1), 04020001.
5. Faraji, Z., & Fleischhacker, A. (2020). Overstatement of firm diversification effect on bankruptcy risk reduction. *International Journal of Applied Decision Sciences*, 13(3), 267–285.
6. Ji, X., Tsai, Y.-L., & Fleischhacker, A. (2019). A uniqueness-driven similarity measure for automated competitor identification. *International Journal of Applied Decision Sciences*, 12(2), 179–204.
7. Chen, W., Fleischhacker, A. J., & Katehakis, M. N. (2015). Dynamic pricing in a dual-market environment. *Naval Research Logistics (NRL)*, 62(7), 531–549.

- Fleischhacker, A., Chen, B., Kher, H., Mazal, M., & Pfender, B. (2015). Practice summary: Capacity planning in the presence of sequence-dependent setups at AstraZeneca Pharmaceuticals. *Interfaces*, 45(4), 358–362.
- Fleischhacker, A., Ninh, A., & Zhao, Y. (2015). Positioning inventory in clinical trial supply chains. *Production and Operations Management*, 24(6), 991–1011.
- Fleischhacker, A. J., & Fok, P.-W. (2015). An entropy-based methodology for valuation of demand uncertainty reduction. *Decision Sciences*, 46(6), 1165–1198.
- Fleischhacker, A. J., & Fok, P.-W. (2015). On the relationship between entropy, demand uncertainty, and expected loss. *European Journal of Operational Research*, 245(2), 623–628.
- Fleischhacker, A. J., & Zhao, Y. (2013). Balancing learning and economies of scale for adaptive clinical trials. *Operations Research for Health Care*, 2(3), 42–51.
- Fleischhacker, A. J., & Zhao, Y. (2011). Planning for demand failure: A dynamic lot size model for clinical trial supply chains. *European Journal of Operational Research*, 211(3), 496–506.

## Books

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- Fleischhacker, A. J. (2020). *A Business Analyst's Introduction To Business Analytics: Intro To Bayesian Business Analytics in the R Ecosystem*. Independently published. ISBN:9798667128175. Third Printing (2021). <http://causact.com>.
- Fleischhacker, A. J. (n.d.). *Persuasive Python: Unifying Narrative, Math, and Code*. Publisher TBD. <http://persuasivepython.com>.

## Software Packages, Video Playlists, & Other Publications

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- Fleischhacker, A. J. (2020). *A Business Analyst's Introduction to Business Analytics*. Video Playlist (25 Videos). <https://www.youtube.com/playlist?list=PLassxulVwGLPy-mtohX-NXrjD8fc9FBOc>.
- Fleischhacker, A. J. (2020). *causact: Accelerated Bayesian Analytics with DAGs*. Software Package. Current version (0.4.2) published 2022-06-14. <https://cran.rstudio.com/web/packages/causact/index.html>.
- Ghonima, O., Schumacher, T., Unnikrishnan, A., & Fleischhacker, A. (2018). *Advancing bridge technology, task 10: Statistical analysis and modeling of US concrete highway bridge deck performance—internal final report*.
- Schumacher, T., Ghonima, O., Fleischhacker, A., Unnikrishnan, A., et al. (2018). *Performance of concrete highway bridge decks using nationwide condition data [techbrief]*. United States. Federal Highway Administration. Office of Bridge Technology.
- Fleischhacker, A. J., & Zhao, Y. (2013). Contract development and manufacturing costs during clinical development of a new drug. *Applied Clinical Trials Online*.
- Fleischhacker, A. (2009). *An investigation of clinical trial supply chains* [PhD thesis]. Rutgers The State University of New Jersey-Newark.

## Grants

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\$5,000	University of Delaware - JP Mogan Chase Analytics Certificate - Decision Analytics & Visualization (Python)	2022
\$5,000	University of Delaware MBA Curriculum - Decision Analytics & Visualization (R)	2016
\$142,134	Delaware Department of Natural Resources - Co-Principal Investigator (Analytics and Visualization)	2016
\$50,000	Agilent Technologies - Principal Investigator (Supply Chain Analytics and Visualization)	2014-5
\$30,000	AstraZeneca Pharmaceuticals - Co-Principal Investigator (Formulation Capacity Modelling)	2013
\$120,000	JP Morgan Chase - Co-Principal Investigator (Using Metrics for Continual Improvement in Application Delivery)	2013

## Articles in Preparation

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- Cai, C., & Fleischhacker, A. J. (n.d.). Understanding the timing of deposit decisions in college admissions. *Targeting Journal of Higher Education*.
- Nguyen, R., & Fleischhacker, A. J. (n.d.). Sinkhorn-based algorithm for visualization of directed acyclic graphs with nested and intersecting plates. *Targeting IEEE Computer Graphics and Applications*.
- Fleischhacker, A. J. (n.d.). Metalog-based Bayesian workflows for collaborative demand forecasting. *Targeting Manufacturing & Service Operations Management*.
- Faraji, Z., & Fleischhacker, A. J. (n.d.). A causal study of diversification's joint effect on firm performance and risk. *Targeting Publication in Peer-Reviewed Journal*.

## Teaching: Courses Taught Since 2015

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Consistently high teaching evaluations. Typically, 4.7 out of 5.0 for in-person classes (*5 is best*) and 1.3 out of 5.0 for online (*1 is best*). My capstone course is often ranked above 4.9 out of 5.0. Since 2015, I have taught 7+ different courses:

- **DECISION ANALYTICS & VISUALIZATION (BUAD345/621)**
  - MBA (in-person): Spring 2020-22.
  - MBA (online): Spring 2016. Fall 2020(x2)-2022.
  - JP Morgan Chase Certificate Program: Once per year 2019-22.
  - Undergraduate: Spring 2019
- **BUSINESS ANALYTICS CAPSTONE (BUAD625)**
  - MBA: Spring 2019-21
- **INTERPRETABLE DATA MODELS (BUAD442)**
  - Undergraduate (in-person): Spring 2022
- **BUSINESS PROCESS INNOVATION (FSAN830)**
  - Ph.D. (in-person): Taught every other Spring since 2015.
- **OPERATIONS MANAGEMENT (BUAD306/631)**
  - MBA (in-person): Fall 2015-20, Spring 2020
  - Undergraduate (in-person): Fall 2017(honors)
- **OTHER COURSES TAUGHT AND INDEPENDENT STUDY SUPERVISION**
  - Probabilistic Graphical Models Seminar (Spring 2016)
  - Experimental Undergraduate Business Analytics (Spring 2015)
  - Production Scheduling Optimization (Spring 2015)

## Teaching: Accolades Since 2015

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- Frequent MBA Teaching Award Nominee and Recipient
  - Most Votes By MBA Class - Winner (2020), 2<sup>nd</sup> (2017,2019), Nominee (2016-2021).
- University Excellence in Teaching Nominee (2015,2016)
- University Excellence in Undergraduate Advising and Mentoring Nominee (2016).
- Some selected comments from recent student emails, evaluations, and articles:
  - “Just wanted to let you know that very recently, I’ve joined [large international bank] as a Senior Analyst... wanted to let you know that through my interview processes I was able to achieve positive feedback using learnings from your Decision Analytics & Visualization and Business Analytics Capstone courses.” (email on Dec 13, 2022)
  - “I’m a Product Management (PM) leader at [a multi-trillion dollar investment advisor] and of course, a large part of product management is figuring out what the data we track is telling us... This class will not only help me work better with our data teams but encourage some of my PMs to become more data-proficient themselves.” (email on Oct. 28, 2022)
  - “Professor Fleischhacker did a great job with this course and overall, this was one of my favorite classes that I have taken thus far in the program.” (student comment from BUAD621 Fall A 2021).”
  - “I enjoyed the material covered during my Business Analytics Capstone taught by Adam Fleischhacker. It was very challenging, however, very rewarding as I was able to get hands-on experience by developing solutions with my classmates. It also became memorable because I completed the class in the Spring of 2020. While we didn’t finish the class together in person, I was impressed by the resilience of our class and professor.” - Erica Santos Interview (<https://lerner.udel.edu/seeing-opportunity/lifelong-lerner-erica-santos/>)

## Other Notable Achievements & Activities Since 2015

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- Member of Production and Operations Management Editorial Board.
- Primary Ph.D. Supervisor (Financial Services Analytics) for Chuan Cai (anticipated 2023), Rose Nguyen (anticipated 2024), Negin Faraji (2020), Xin Ji (2018).
- Senior thesis advisor for Alexander Daniels (2016), McNair Scholar.
- Instrumental in designing and launching business analytics undergraduate minor/major, MBA concentration/major, and PhD (Financial Services Analytics) degrees.
- Prominent and successful search committee activities: Management Information Systems (TT, 2015), Busi-

ness Analytics (as chair, TT, 2015), Entrepreneurship (CT, 2017), Entrepreneurship (CT, 2018), Entrepreneurship (CT, 2019), Operations Management (as chair, CT 2019), Operations Management (as chair, TT, 2019), Operations Management (as chair, CT, 2021), and yet-to-be-hired Operations Management (CT, 2023). Literally, all hires have been superstars who have stayed with us.

- Frequent contributor to R open source software projects managed by others including reticulate, DiagrammeR, and greta.
- Member of MBA Curriculum Committee (2020-Present).

## Previous Professional Experience

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### Dept. of Natural Resources

*Dover, DE*

CO-PRINCIPAL INVESTIGATOR

2016

- Working with department employees on how to use data analytics and visualization for monitoring Delaware's air and water quality.

### Agilent Technologies

*Wilmington, DE*

PRINCIPAL INVESTIGATOR

2014-15

- Managing joint research project on using analytics and visualization for continuous improvement in supply chain performance. Also, using optimization to minimize stock picking times in a warehouse.

### AstraZeneca Pharmaceuticals

*Newark, DE*

CO-PRINCIPAL INVESTIGATOR

2013

- Co-managing joint research project on optimizing production scheduling with sequence-dependent changeovers.

### JP Morgan Chase

*Newark, DE*

PRINCIPAL INVESTIGATOR

2012-13

- Managing joint research project on using metrics for continuous improvement in application delivery processes.

### Category Captain Services

*Lake Hopatcong, NJ*

FOUNDER & CONSULTANT

2004-05

- Founded an analytical methods and business process consulting firm to create operational efficiencies through management of products at the category level.

### World Fuel Services

*Edison, NJ*

DIRECTOR OF FRONT OFFICE SOLUTIONS

2001-04

- Managed internal and outside software development teams across multiple sites/countries. Collaborated with management users in developing business processes to improve front office operations and streamline fuel supply chains.
- Delivered web-based front-office system launched in 17 international offices.

### TransportEdge, Inc.

*Parsippany, NJ*

DIRECTOR OF PRODUCT MANAGEMENT

2000-01

- Promoted from within to craft new marketing strategy for financially challenged B2B Internet start-up.
- Championed TransportEdge's metamorphosis from public B2B marketplace to Internet enabled trading software provider leading to company being sold to World Fuel Services Corporation.

### i2 Technologies

*Edison, NJ*

PRODUCT MANAGER, DEMAND MANAGEMENT

1998-2000

- Ensured i2's software could support demand planning best practices from the consumer goods and retail industries.