1 Address and telephone number

Home
48 Lexington Ave
Florence, MA
413-218-3900

Campus
Program in Statistical & Data Sciences
McConnell 214
413-585-3440

2 Degrees

Degree	Year	Institution	Subject
PStat™	2014	American Statistical Association (ASA)	Statistics
Ph.D.	2012	City University of New York	Mathematics, Topic: *theoretical computer science, analysis of algorithms*
M.Phil.	2011	City University of New York	Mathematics
M.A.	2011	City University of New York	Mathematics
M.A.	2003	University of California, San Diego	Mathematics (Applied)
B.A.	2000	Wesleyan University	Economics

3 Awards and honors

Award **Year**

Waller Education Award, *ASA Section on Statistics and Data Science Education* 2019
Won. "Honors individuals for innovation in the instruction of elementary statistics."

Significant Contributor Award, *ASA Section on Statistics and Sports* 2019
Won. "Honors a significant contributor to statistics in sports who is invited to speak at the section's annual luncheon at the JSM."

Outstanding Undergraduate Teaching Award, *ASA Boston Chapter* 2019
Won. "Recognizes exceptional efforts in teaching statistics at the undergraduate level."

SPAIG Award, *ASA* 2019
Won, on behalf of the Five Colleges and MassMutual. "Recognizes outstanding **s**tatistical **p**artnerships between **a**cademe, **i**ndustry, and **g**overnment organizations, as well as to promote new partnerships among these organizations."

Contemporary Baseball Analysis Award, *Society for American Baseball Research* 2016
Won, for *OpenWAR: An open source system for evaluating overall player performance in Major League Baseball*. Awarded annually to outstanding research projects that have "significantly expanded our knowledge or understanding of baseball."

EPPY Award, *Editor & Publisher* 2015
Nominated, for *The Great Analytics Rankings* article for ESPN.com. Best Innovation Project with 1 million unique monthly visitors and over.

4 Employment history

Employer	Title	Department	Years
Smith College	Associate Professor (with tenure)	Statistical & Data Sciences	2020–present

Smith College	Assistant Professor	Statistical & Data Sciences	2015–2020
Smith College	Visiting Assistant Professor	Statistical & Data Sciences	2014–2015
Smith College	Visiting Assistant Professor	Mathematics & Statistics	2012–2014
Queens College	Adjunct Lecturer	Mathematics	2010
Hunter College	Adjunct Lecturer	Statistics	2008–2009
New York Mets	Statistical Analyst	Baseball Operations	2004–2012

5 Grants received

Grant	**Year**
Susan B Lindenauer '61 Fellowship, *Smith College* Support development of a new one-credit course, SDS 100: Reproductible Scientific Computing with Data, shaping students' ability to engage in data science work using modern workflows, open-source tools, and ethical practices.	2022–2023
The Data Science WAV, *National Science Foundation* Serving as PI on three-year, nine-institution, $1.2 million workforce development project for undergraduate data science that focuses on experiential learning with local community organizations. Funded under the Harnessing the Data Revolution, Data Science Corps program.	2019–2023
Ad-Hoc Faculty Working Group on Learning & Technology, *Smith College* Studied the effect of integration of new technologies upon student learning and engagement	2019
Design Thinking Initiative Curriculum Enhancement Grant, *Smith College* Integrated faculty from film and media studies and English language and literature into data journalism and ethics liberal arts modules in intro data science course	2017–2018
Jean M. Picker Fellowship, *Smith College* One-course release to pursue research in statistical and data sciences	2016–2017
Liberal Arts Modules to Promote Diversity and Achievement in STEM, *PKAL/TIDES* Converted data science into an intro course, integrated liberal arts modules, and incorporated inclusive teaching methods	2014–2017
Faculty Fellow, *Project Teaching Integrity in Empirical Research* Developed and promoted computational reproducible research methods across disciplines	2015–2016
Maven and Contributor, *Project MOSAIC* Contributed to open-source codebase and promoted use of NSF-funded project to streamline mathematical and statistical computing	2013–2015
Tesla K40 GPU Hardware Grant, *NVIDIA Corp* Received $5500 GPU card for research and education on computing with big data	2015
Mary P. Dolciani Fellow, *Project NExT* Professional development program for early-career mathematicians and statisticians emphasizing active learning and professional networking	2012–2013

6 Publications

Note: student co-authors in **bold**. Please see my Google Scholar profile (`https://scholar.google.com/citations?user=HWo0CDEAAAAJ`) for citations.

6.a Books

[1] B. S. Baumer, D. T. Kaplan, and N. J. Horton, *Modern Data Science with R*, 2nd. Chapman and Hall/CRC Press: Boca Raton, Apr. 2021, pp. 1–673, ISBN: 9780367191498. [Online]. Available: https://www.routledge.com/Modern-Data-Science-with-R/Baumer-Kaplan-Horton/p/book/9780367191498.

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[3] B. S. Baumer, D. T. Kaplan, and N. J. Horton, *Modern Data Science with R*. Chapman and Hall/CRC Press: Boca Raton, Feb. 2017, p. 551, ISBN: 9781498724487. [Online]. Available: https://www.crcpress.com/Modern-Data-Science-with-R/Baumer-Kaplan-Horton/9781498724487.

[4] B. Baumer and A. Zimbalist, *The Sabermetric Revolution: Assessing the Growth of Analytics in Baseball*. University of Pennsylvania Press, 2014, p. 240, ISBN: 978-0-8122-4572-1. [Online]. Available: http://www.upenn.edu/pennpress/book/15168.html.

[5] B. S. Baumer, "Sensor strip cover: Maximizing network lifetime on an interval," Ph.D. dissertation, City University of New York, May 2012, p. 110, ISBN: 9781267344403. [Online]. Available: http://proquest.umi.com/pqdweb?did=2677679131&sid=1&Fmt=2&clientId=29054&RQT=309&VName=PQD.

Note: In computer science research, publications tend to come in pairs: a conference paper that represents the first public appearance of a finding; and (often) a corresponding journal publication that follows. Conference papers are considered more prestigious, since the peer-review process is more competitive. Journal papers are required to contain 25-40% more material than the corresponding conference paper, and are thus considered separate publications. Order of authors is usually alphabetical. In statistics, order of authors is usually based on strength of contribution.

6.b Articles (peer-reviewed journals)

[1] B. S. Baumer, R. L. Garcia, A. Y. Kim, K. M. Kinnaird, and M. Q. Ott, "Integrating data science ethics into an undergraduate major: A case study," *Journal of Statistics and Data Science Education*, vol. 30, no. 1, pp. 15–28, 2022. DOI: 10.1080/26939169.2022.2038041. [Online]. Available: https://doi.org/10.1080/26939169.2022.2038041.

[2] M. Çetinkaya-Rundel, J. S. Hardin, B. S. Baumer, A. A. McNamara, N. J. Horton, and C. W. Rundel, "An educator's perspective of the tidyverse," *Technology Innovations in Statistics Education*, vol. 14, no. 1, 2022. DOI: 10.5070/T514154352.

[3] S. P. Couch, A. P. Bray, C. Ismay, E. Chasnovski, B. S. Baumer, and M. Çetinkaya-Rundel, "Infer: An R package for tidyverse-friendly statistical inference," *Journal of Open Source Software*, vol. 6, no. 65, p. 3661, Sep. 2021. DOI: 10.21105/joss.03661. [Online]. Available: https://doi.org/10.21105/joss.03661.

[4] A. M. **Bertin** and B. S. Baumer, "Creating optimal conditions for reproducible data analysis in R with 'fertile'," *Stat*, vol. 10, no. 1, e332, Dec. 2020, Special Issue on the 2020 Symposium for Data Science and Statistics. DOI: 10.1002/sta4.332. [Online]. Available: https://doi.org/10.1002/sta4.332.

[5] M. S. **Schwartz**, J. Schnabl, M. P. **Litz**, B. S. Baumer, and M. Barresi, "Δ-SCOPE: A new method to quantify 3D biological structures and identify differences in zebrafish forebrain development," *Developmental Biology*, vol. 460, no. 2, pp. 115–138, Apr. 2020. DOI: 10.1016/j.ydbio.2019.11.014. [Online]. Available: https://doi.org/10.1016/j.ydbio.2019.11.014.

[6] B. S. Baumer, A. S. Bray, M. Çetinkaya-Rundel, and J. Hardin, "Teaching introductory statistics with DataCamp," *Journal of Statistics Education*, vol. 28, no. 1, Mar. 2020. DOI: 10.1080/10691898.2020.1730734. [Online]. Available: https://www.tandfonline.com/doi/ref/10.1080/10691898.2020.1730734.

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[8] B. S. Baumer and A. S. Zimbalist, "The impact of college athletic success on donations and applicant quality," *International Journal of Financial Studies*, vol. 7, no. 2, p. 19, 2019, Special Issue on Sports Finance 2018. DOI: 10.3390/ijfs7020019. [Online]. Available: https://www.mdpi.com/2227-7072/7/2/19.

[9] B. S. Baumer, "Lessons from between the white lines for isolated data scientists," *The American Statistican*, vol. 72, no. 1, pp. 66–71, 2018. DOI: 10.1080/00031305.2017.1375985. [Online]. Available: http://amstat.tandfonline.com/doi/full/10.1080/00031305.2017.1375985.

[10] M. Lopez, G. J. Matthews, and B. S. Baumer, "How often does the best team win? A unified approach to understanding randomness in North American sport," *Annals of Applied Statistics*, vol. 12, no. 4, pp. 2483–2516, 2018, ISSN: 1932-6157. DOI: 10.1214/18-AOAS1165.

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[12] A. Bar-Noy, B. Baumer, and D. Rawitz, "Changing of the guards: Strip cover with duty cycling," *Theoretical Computer Science*, vol. 610, pp. 135–148, 2016. DOI: 10.1016/j.tcs.2014.09.002. [Online]. Available: https://doi.org/10.1016/j.tcs.2014.09.002.

[13] B. S. Baumer, Y. **Wei**, and G. S. Bloom, "The smallest non-autograph," *Discussiones Mathematicae Graph Theory*, vol. 36, no. 3, pp. 577–602, 2016. DOI: 10.7151/dmgt.1881. [Online]. Available: http://www.discuss.wmie.uz.zgora.pl/gt/index.php?doi=10.7151/dmgt.1881.

[14] A. Bar-Noy, B. Baumer, and D. Rawitz, "Set it and forget it: Tighter approximation bounds for RoundRobin in a restricted lifetime model," *Algorithmica*, vol. 76, no. 2, pp. 1–19, Oct. 2016. DOI: 10.1007/s00453-016-0198-8. [Online]. Available: http://link.springer.com/article/10.1007/s00453-016-0198-8.

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[18] J. Hardin, R. Hoerl, N. J. Horton, D. Nolan, B. Baumer, O. Hall-Holt, P. Murrell, R. Peng, P. Roback, D. Temple Lang, *et al.*, "Data science in statistics curricula: Preparing students to 'think with data'," *The American Statistician*, vol. 69, no. 4, pp. 343–353, 2015. DOI: 10.1080/00031305.2015.1077729. [Online]. Available: http://www.tandfonline.com/doi/abs/10.1080/00031305.2015.1077729.

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[20] B. Baumer, M. Çetinkaya-Rundel, A. Bray, L. **Loi**, and N. J. Horton, "R Markdown: Integrating a reproducible analysis tool into introductory statistics," *Technology Innovations in Statistics Education*, vol. 8, no. 1, 2014. [Online]. Available: http://escholarship.org/uc/item/90b2f5xh.

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6.c Articles (peer-reviewed conferences)

[1] B. S. Baumer, "Lessons from between the white lines for isolated data scientists," *PeerJ Preprints*, vol. 5, e3160v2, Aug. 2017, ISSN: 2167-9843. DOI: 10.7287/peerj.preprints.3160v2. [Online]. Available: https://doi.org/10.7287/peerj.preprints.3160v2.

[2] B. Baumer, G. Rabanca, A. Bar-Noy, and P. Basu, "Star search: Effective subgroups in collaborative social networks," in *Proceedings of the 2015 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining 2015*, ser. ASONAM '15, ACM, Paris, France: ACM, 2015, pp. 729–736, ISBN: 978-1-4503-3854-7. DOI: 10.1145/2808797.2810062. [Online]. Available: http://dl.acm.org/citation.cfm?id=2810062.

[3] A. Bar-Noy, B. Baumer, and D. Rawitz, "Brief announcement: Set it and forget it - approximating the set once strip cover problem," in *SPAA*, G. E. Blelloch and B. Vöcking, Eds., ACM, 2013, pp. 105–107, ISBN: 978-1-4503-1572-2. DOI: 10.1145/2486159.2486162. [Online]. Available: https://dl.acm.org/citation.cfm?id=2486162.

[4] P. Bogdanov, B. Baumer, P. Basu, A. Bar-Noy, and A. K. Singh, "As strong as the weakest link: Mining diverse cliques in weighted graphs," in *ECML/PKDD (1)*, H. Blockeel, K. Kersting, S. Nijssen, and F. Zelezný, Eds., ser. Lecture Notes in Computer Science, vol. 8188, Springer, 2013, pp. 525–540, ISBN: 978-3-642-40987-5. DOI: 10.1007/978-3-642-40988-2_34. [Online]. Available: https://link.springer.com/chapter/10.1007/978-3-642-40988-2_34.

[5] A. Bar-Noy, B. Baumer, and D. Rawitz, "Changing of the guards: Strip cover with duty cycling," in *SIROCCO*, G. Even and M. M. Halldórsson, Eds., ser. Lecture Notes in Computer Science, vol. 7355, Springer, 2012, pp. 36–47, ISBN: 978-3-642-31103-1. DOI: 10.1007/978-3-642-31104-8_4. [Online]. Available: http://www.springer.com/us/book/9783642311031.

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[7] B. Baumer, P. Basu, and A. Bar-Noy, "Modeling and analysis of composite network embeddings," in *MSWiM*, A. Helmy, B. Landfeldt, and L. Bononi, Eds., ACM, 2011, pp. 341–350, ISBN: 978-1-4503-0898-4. DOI: 10.1145/2068897.2068956. [Online]. Available: https://dl.acm.org/citation.cfm?id=2068956.

6.d Articles (not peer-reviewed)

[1] A. B. Elam, B. S. Baumer, T. Schott, M. Samsami, A. K. Dwivedi, R. J. Baldegger, M. Guerrero, F. Boutaleb, and K. D. Hughes, "Global entrepreneurship monitor 2021/22 women's entrepreneurship report: From crisis to opportunity," Global Entrepreneurship Monitor, Tech. Rep., Nov. 2022, **–A–**, edited but not peer-reviewed, pp. 1–184. [Online]. Available: https://www.gemconsortium.org/report/gem-202122-womens-entrepreneurship-report-from-crisis-to-opportunity.

[2] A. B. Elam, C. G. Brush, P. G. Greene, B. S. Baumer, and R. Heavlow, "Global entrepreneurship monitor women's entrepreneurship 2020/2021: Thriving through crisis," Global Entrepreneurship Monitor, Tech. Rep., Nov. 2021, **–A–**, edited but not peer-reviewed, pp. 1–146. [Online]. Available: https://www.gemconsortium.org/file/open?fileId=50841.

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[5] D. J. Kelley, B. S. Baumer, C. G. Brush, M. Cole, M. Dean, M. Madavi, M. Majbouri, P. Greene, and R. Heavlow, "Global entrepreneurship monitor 2016/2017 women's entrepreneurship report," Global Entrepreneurship Monitor, Tech. Rep., Jul. 2017, edited but not peer-reviewed, pp. 1–93.

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6.e Chapters in books

[1] B. S. Baumer and P. **Badian-Pessot**, "Evaluation of batters and base runners," in *Handbook of Statistical Methods and Analyses in Sports*, J. Albert, M. E. Glickman, T. B. Swartz, and R. H. Koning, Eds., Chapman and Hall/CRC Press: Boca Raton, FL, Dec. 2016, ch. 1, pp. 1–37, ISBN: 9781498737364. [Online]. Available: https://www.crcpress.com/Handbook-of-Statistical-Methods-and-Analyses-in-Sports/Albert-Glickman-Swartz-Koning/p/book/9781498737364.

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6.f Book reviews

[1] B. S. Baumer, *The Oxford Anthology of Statistics in Sports: Volume 1: 2000-2004 by James J. Cochran, Jay Bennett, Jim Albert*, *The American Statistician*, vol. 72, 3, pp. 297–298, 2018, edited but not peer-reviewed. DOI: 10.1080/00031305.2018.1496649. [Online]. Available: https://www.tandfonline.com/doi/abs/10.1080/00031305.2018.1496649.

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6.g Review articles and essays

[1] B. S. Baumer, N. J. Horton, E. Meyers, and A. Dustin, "Symposium focuses on opportunities for Massachusetts community colleges," *AMSTAT News*, no. 444, p. 1, Sep. 2022, edited but not peer reviewed. [Online]. Available: https://magazine.amstat.org/blog/2022/09/01/syposium_mass/.

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6.h R packages (published on CRAN)

[1] B. S. Baumer, R. Goueth, W. Li, D. Kelly, and A. Y. Kim, *Macleish: Retrieve data from macleish field station*, R package version 0.3.9, 2022. [Online]. Available: https://github.com/beanumber/macleish.

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[3] A. Bray, C. Ismay, E. Chasnovski, S. Couch, B. Baumer, and M. Cetinkaya-Rundel, *Infer: Tidy statistical inference*, R package version 1.0.2, 2022. [Online]. Available: https://CRAN.R-project.org/package=infer.

[4] M. Tapal, R. Gahwagy, I. Ryan, and B. S. Baumer, *Fec16: Data package for the 2016 united states federal elections*, R package version 0.1.3, 2022. [Online]. Available: https://github.com/baumer-lab/fec16.

[5] B. S. Baumer, *Etl: Extract-transform-load framework for medium data*, R package version 0.4.0, 2021. [Online]. Available: https://github.com/beanumber/etl.

[6] B. S. Baumer and G. J. Matthews, *Teamcolors: Color palettes for pro sports teams*, R package version 0.0.4, 2020. [Online]. Available: http://github.com/beanumber/teamcolors.

6.i R packages (published on GitHub)

[1] B. Baumer and G. Matthews, *Openwar: Machinery for analyzing baseball data and computing war*, R package version 0.2.3.9003, 2018. [Online]. Available: https://github.com/beanumber/openWAR.

[2] B. S. Baumer, *Airlines: Historical on-time flight data*, R package version 0.2.2.9015, 2018. [Online]. Available: http://github.com/beanumber/airlines.

[3] B. S. Baumer, *Imdb: Populate a database with data from the imdb*, R package version 0.0.2.9005, 2017. [Online]. Available: https://github.com/beanumber/imdb.

[4] B. S. Baumer and E. Gjekmarkaj, *Fec: Campaign finance for federal elections*, R package version 0.0.0.9015, 2017. [Online]. Available: http://github.com/beanumber/fec.

6.j Acknowledgements in the work of others

[1] D. W. Jones, J. Simons, S. Lipsitz, M. Schermerhorn, and A. Schanzer, "Novel surgical quality metrics in abdominal aortic aneurysm repair," *Journal of Vascular Surgery*, 2022. DOI: 10.1016/j.jvs.2022.03.877. [Online]. Available: https://doi.org/10.1016/j.jvs.2022.03.877.

6.k Reviews of my work

[1] K. Arai and V. Lyubchich, "Modern Data Science with R (2nd ed.)," *Technometrics*, vol. 64, no. 3, pp. 429–429, 2022. DOI: 10.1080/00401706.2022.2087421.

[2] A. Hoyer, "Modern Data Science with R (2nd ed.)," *Biometrical Journal*, vol. 63, no. 8, pp. 1748–1749, Dec. 2021. DOI: 10.1002/bimj.202100258.

[3] T. Downie, "Analyzing Baseball Data with R (2nd edition)," *Journal of Statistical Software, Book Reviews*, vol. 90, no. 1, pp. 1–4, 2019, ISSN: 1548-7660. DOI: 10.18637/jss.v090.b01. [Online]. Available: https://www.jstatsoft.org/v090/b01.

[4] A. P. Bray, "Reviews of books and teaching materials," *The American Statistician*, vol. 72, no. 3, pp. 295–299, 2018. DOI: 10.1080/00031305.2018.1496649.

[5] S. Liu, "Modern Data Science with R," *International Statistical Review*, vol. 86, no. 1, pp. 162–162, 2018. DOI: 10.1111/insr.12256.

[6] A. M. Miller, "Review of Modern Data Science with R," *SIGACT News*, vol. 49, no. 4, pp. 13–16, Dec. 2018, ISSN: 0163-5700. DOI: 10.1145/3300150.3300155. [Online]. Available: https://doi.org/10.1145/3300150.3300155.

[7] J. Prats, *R book review: Two approaches to learning data science*, Aug. 2018. [Online]. Available: https://www.significancemagazine.com/science/596-r-book-review-two-approaches-to-learning-data-science?highlight=WyJiYXVtZXIiXQ==.

[8] T. Downie, "Modern Data Science with R," *Journal of Statistical Software, Book Reviews*, vol. 80, no. 2, pp. 1–6, 2017. DOI: 10.18637/jss.v080.b02. [Online]. Available: https://www.jstatsoft.org/index.php/jss/article/view/v080b02.

[9] R. W. Hayden, "Modern Data Science with R," *MAA Reviews*, Mar. 2017. [Online]. Available: https://www.maa.org/press/maa-reviews/modern-data-science-with-r.

Forthcoming

6.l Articles

[1] B. S. Baumer and N. J. Horton, "Data science transfer pathways from associate's to bachelor's programs," *Harvard Data Science Review*, 2023, in press. [Online]. Available: https://arxiv.org/abs/2210.12528.

[2] C. Legacy, A. Zieffler, B. S. Baumer, V. Barr, and N. J. Horton, "Facilitating team-based data science: Lessons learned from the DSC-WAV project," *Foundations of Data Science*, 2022, early access, Special issue on Data Science Education Research. DOI: 10.3934/fods.2022003.

Works in Progress

6.m Articles (under review)

[1] B. S. Baumer, "More math for data science, not less," *Chance*, 2023, **DOAWR**, under review.

[2] B. S. Baumer, G. J. Matthews, and Q. **Nguyen**, "Big ideas in sports analytics and statistical tools for their investigation," *Wiley Interdisciplinary Reviews: Computational Statistics*, 2022, revise and resubmit.

6.n Articles (in progress)

[1] B. S. Baumer, D. **Kelly**, and A. Y. Kim, "MacLeish: An R package for monitoring environmental conditions in Whately, Massachusetts," *Journal of Statistics and Data Science Education*, 2022, **DOAWR**, in preparation.

[2] S. Hancock, B. S. Baumer, R. Gould, K. Kozak, and N. J. Horton, "Data science for statistics programs," *Harvard Data Science Review*, 2019, **DOAWR**, in progress.

7 Concerts, performances, and exhibitions

7.a Book Readings

[1] B. S. Baumer, *The sabermetric revolution*, Smokey Joe Wood Chapter, Society for American Baseball Research, Quinnipiac University, Oct. 2014.

[2] B. S. Baumer and A. S. Zimbalist, *The sabermetric revolution*, Rabbit Maranville Chapter, Society for American Baseball Research, Western New England University, Apr. 2014.

[3] B. S. Baumer and A. S. Zimbalist, *The sabermetric revolution*, Booklink, Feb. 2014.

8 Scholarly lectures and other professional presentations

8.a Keynotes and Invited Talks

[1] B. S. Baumer, *How to build a data science program*, Invited speaker on data science, Loyola University Chicago, Nov. 2022.

[2] B. S. Baumer, *Creating optimal conditions for reproducible data analysis in R with 'fertile'*, Joint Statistical Meetings, Invited session on A Multi-Disciplinary View of Reproducibility, Washington, DC, Aug. 2022. [Online]. Available: https://ww2.amstat.org/meetings/jsm/2022/onlineprogram/ActivityDetails.cfm?SessionID=222036.

[3] B. S. Baumer, *Data science clinic: A capstone experience for Smithies in SDS*, Invited Session on Real-Life Data Analysis Experiences for Statistics and Data Science Students, Symposium on Data Science and Statistics, Pittsburgh, PA, Jun. 2020. [Online]. Available: https://ww2.amstat.org/meetings/sdss/2020/onlineprogram/AbstractDetails.cfm?AbstractID=308060.

[4] B. S. Baumer, *Statistics and data science at Smith*, AMS Mini-Conference on Education: Mathematics Departments and the Explosive Growth of Computational and Quantitative Offerings in Higher Education, Washington, DC, Oct. 2019.

[5] B. S. Baumer, *The new roaring twenties: Imagining statistics and data science curricula in the coming decade*, Boston Chapter of the ASA, Invited address for Outstanding Undergraduate Teaching Award, Harvard University, Oct. 2019.

[6] B. S. Baumer, *How did i get here?: Reflections on an early career in sports analytics*, Invited Speaker with Lunch, Joint Statistical Meetings, Invited address for winning the Significant Contributor Award, Denver, CO, Jul. 2019.

[7] B. S. Baumer, *Building a data science program*, Invited address, Bryn Mawr College, Mar. 2019.

[8] B. S. Baumer, *How often does the best team win? A unified approach to understanding randomness in North American sport*, Fields Sports Analytics Workshop, The Fields Institute, May 2018.

[9] *Moneyball revisited: Sabermetrics past, present, and future*, Play Ball: The History, Culture, and Politics of Baseball, Mount Wachusett Community College, Nov. 2017.

[10] B. S. Baumer, *How often does the best team win? A unified approach to understanding randomness in North American sport*, CMU Sports Analytics Conference, Carnegia Mellon University, Oct. 2017.

[11] *Three methods approach to statistical inference*, Invited Session on Novel Approaches to First Statistics/Data Science courses, Joint Statistical Meetings, Baltimore, MD, Aug. 2017.

[12] *Data science, sabermetrics, and you*, MacDougal Lecture in Mathematics, Lawrence University, May 2017.

[13] *Harnessing the extraordinary power of statistics in sports*, Invited Panel, Joint Statistical Meetings, Chicago, IL, Aug. 2016.

[14] *Data wrangling for the Lahman*, Invited Session on the Use of Sports Data in Undergraduate Statistics Education, Joint Statistical Meetings, Seattle, WA, Aug. 2015.

[15] *Teaching data science at a small liberal arts college for women*, Invited Session on Teaching Data Science at the Undergraduate Level, Joint Statistical Meetings, Boston, MA, Aug. 2014.

[16] *OpenWAR: An open source system for overall player performance in major league baseball*, New England Statistics Symposium, Harvard University School of Public Health, Apr. 2014.

[17] *OpenWAR: An open source system for overall player performance in major league baseball*, Invited Session on Analytics & Visualization in Professional Sports, Joint Statistical Meetings, Montreal, Canada, Aug. 2013.

[18] *Moneyball revisited: Assessing the sabermetric revolution in baseball*, MIT Sloan Sports Analytics Conference, with Andrew Zimbalist, Boston, MA, Mar. 2013.

[19] *Applications of the hits per balls in play rate in baseball*, NJCU Math Awareness Month, New Jersey City University, Apr. 2010.

[20] *Survey of methods for the evaluation of defensive ability in major league baseball*, Special Section on Statistics in Sports, Joint Statistical Meetings, Washington, D.C., Aug. 2009.

8.b Conference talks and posters

[1] A. M. Bertin and B. S. Baumer, *Creating optimal conditions for reproducible data analysis in R with 'fertile'*, Software and Data Science Technologies I, Symposium on Data Science and Statistics, Pittsburgh, PA, Jun. 2020. [Online]. Available: `https://ww2.amstat.org/meetings/sdss/2020/onlineprogram/AbstractDetails.cfm?AbstractID=308233`.

[2] B. S. Baumer, *A grammar for reproducible and painless extract-transform-load operations on medium data*, Joint Statistical Meetings, Vancouver, BC, Jul. 2018.

[3] B. S. Baumer, *A grammar for reproducible and painless extract-transform-load operations on medium data*, ASA Symposium on Statistics and Data Science, Reston, VA, May 2018.

[4] B. S. Baumer, *How often does the best team win? A unified approach to understanding randomness in North American sport*, New England Symposium on Statistics in Sports, Harvard University, Sep. 2017.

[5] *ETL for medium data*, useR! Conference, Stanford University, Jun. 2016.

[6] *OpenWAR: An open source system for overall player performance in major league baseball*, Mathematics and Sports II, Joint Mathematical Meetings, Baltimore, MD, Jan. 2014.

[7] *OpenWAR: An open source system for overall player performance in major league baseball*, New England Symposium on Statistics in Sports, Harvard University, Sep. 2013.

[8] *Quantifying market inefficiencies in the baseball players' market*, Eastern Economic Association Annual Meeting, with Andrew Zimbalist, New York, NY, May 2013.

[9] *Modeling the ability of a major league infielder*, MAA Poster Session, Joint Mathematical Meetings, San Diego, CA, Jan. 2013.

[10] *Parsing the relationship between baserunning and batting abilities within lineups*, Mathematics and Sports II, Joint Mathematical Meetings, San Diego, CA, Jan. 2013.

[11] *Changing of the guards: Strip cover with duty cycling*, SIROCCO 2012, Rejkjavik, Iceland, Jun. 2012.

[12] *Set it and forget it: Maximizing network lifetime on the line*, STAR-W Workshop, CUNY Graduate Center, Feb. 2012.

[13] *Modeling and analysis of composite network embeddings*, MSWiM 2011, Miami Beach, FL, Nov. 2011.

[14] *Set it and forget it: Tighter approximation bounds for* RoundRobin *in a restricted lifetime model*, 21st Annual Fall Workshop in Computational Geometry, City College, Nov. 2011.

[15] *Maximizing network lifetime on the line with adjustable sensing ranges*, ALGOSENSORS 2011, Saarbrücken, Germany, Sep. 2011.

[16] *Parsing the relationship between baserunning and batting abilities within lineups*, Poster Session, New England Symposium on Statistics in Sports, Harvard University, Sep. 2011.

[17] *Discovering influential groups of agents using composite network analysis*, NetSci 2011, Budapest, Hungary, Jun. 2011.

[18] *Deterministic and probabilistic analysis of restricted strip cover with adjustable sensing ranges*, STAR-W Workshop, CUNY Graduate Center, Feb. 2011.

[19] *Analysis of composite networks*, Session On Large-Scale Networks and Applications, INFORMS Annual Meetings, Austin, TX, Nov. 2010.

[20] *(probabilistic) adjustable range restricted strip cover*, 20th Annual Fall Workshop in Computational Geometry, Stony Brook University, Oct. 2010.

[21] *Improved estimates for the impact of baserunning in baseball*, Novel Applications of Statistical Methods in Baseball Research, Joint Statistical Meetings, Vancouver, Canada, Aug. 2010.

[22] *An investigation into the effects of baserunning in baseball using simulation*, Northern California Symposium on Statistics and Operations Research in Sports, Menlo College, Oct. 2008.

[23] *Why on-base percentage is a better indicator of future performance than batting average: An algebraic proof*, New England Symposium on Statistics in Sports, Harvard University, Sep. 2007.

8.c Seminars and Colloquium talks

[1] B. S. Baumer and K. M. Kinnaird, *Integrating data science ethics into an undergraduate major*, Journal of Statistics and Data Science Eduction webinar, presenter, online, Jul. 2022.

[2] *Data science corps - wrangle, analyze, visualize: Experiential learning in community organizations*, Liberal Arts Luncheon, Smith College, Oct. 2021.

[3] B. S. Baumer, *A grammar for reproducible and painless extract-transform-load operations on medium data*, Biostatistics Seminar, Dartmouth College, Mar. 2018.

[4] B. S. Baumer and N. J. Horton, *Databases in the tidyverse*, American Statistical Association Section on Statistical Consulting Webinar, online, Nov. 2017.

[5] B. S. Baumer, *How often does the best team win? A unified approach to understanding randomness in North American sport*, Data Science Tea, University of Massachusetts, Amherst, Oct. 2017.

[6] *Science on screen: Moneyball*, Amherst Cinema, Amherst, MA, Sep. 2016.

[7] *Moneyball revisited: Sabermetrics today*, SciTech Cafe, Northampton, MA, Apr. 2016.

[8] *Retention of underrepresented students*, Teaching Arts Luncheon, Smith College, Apr. 2016.

[9] *Moneyball revisited: Assessing the sabermetric revolution in baseball*, Boston Chapter of the ASA, Wheelock College, May 2014.

[10] *OpenWAR: An open source system for overall player performance in major league baseball*, Western Mass Data Science, Stats, and R Meetup, University of Massachusetts, Oct. 2013.

[11] *Moneyball revisited: Assessing the sabermetric revolution in baseball*, Undergraduate Mathematics Colloquium, Saint Michael's College, Mar. 2013.

[12] *Moneyball revisited: Assessing the sabermetric revolution in baseball*, Liberal Arts Luncheon, Smith College, Feb. 2013.

[13] *The little spreadsheet that couldn't: Frontiers in data analytics*, Undergraduate Mathematics Colloquium, Smith College, Feb. 2013.

[14] *Parsing the relationship between baserunning and batting abilities within lineups*, Statistics and Probability Seminar Series, University of Massachusetts, Oct. 2012.

[15] *A sabermetric insight: Development and applications of dips theory*, Undergraduate Mathematics Colloquium, Smith College, Mar. 2012.

[16] *A sabermetric insight: Development and applications of dips theory*, Undergraduate Mathematics Colloquium, Trinity College, Mar. 2012.

[17] *Set it and forget it: Tighter approximation bounds for* RoundRobin *in a restricted lifetime model*, Undergraduate Computer Science Colloquium, Polytechnic Institute of New York University, Nov. 2011.

[18] *Parsing the relationship between baserunning and batting abilities within lineups*, Undergraduate Mathematics Colloquium, Trinity University, Oct. 2011.

[19] *Mapping batter ability in baseball by using spatial statistics techniques*, CUNY Statistics Seminar, CUNY Graduate Center, Apr. 2010.

[20] *A survey of methods for the evaluation of defensive ability in major league baseball*, CUNY Statistics Seminar, CUNY Graduate Center, Oct. 2009.

[21] *A modern view of sabermetrics: History, context, and applications*, Undergraduate Statistics Colloquium, Babson College, Mar. 2009.

[22] *The science of baseball*, UCSD Near You, New York, NY, Mar. 2009.

[23] *A brief primer on sabermetrics: What algebra, probability and statistics have taught us about baseball*, Undergraduate Mathematics Colloquium, Swarthmore College, Nov. 2008.

[24] *The core elements of baseball statistics*, Undergraduate Math Lecture Series, Wesleyan University, Feb. 2005.

8.d Panels and Guest Lectures

[1] B. S. Baumer, *Data science ethics*, Joint Statistical Meetings, Invited Panel on Infusing Data Ethics into the Development of Data Users, virtual, Aug. 2021. [Online]. Available: `https://ww2.amstat.org/meetings/jsm/2021/onlineprogram/ActivityDetails.cfm?SessionID=220332`.

[2] A. McNamara, *Consistency is key: A case study in R syntaxes*, Project TIER 2021 Spring Symposium: Instruction in Reproducible Research: Educational Outcomes, moderated by Benjamin S. Baumer, `https://www.projecttier.org/`, Mar. 2021.

[3] B. S. Baumer, *Data science ethics: What are they and why do we need them?* Williams College Data Science Bootcamp, Williams College, Jan. 2020.

[4] B. S. Baumer, *SQL after dplyr*, Data Science (Using R), Villanova University, Nov. 2018.

[5] B. S. Baumer and Z. Scott, *Baseball analytics*, Business of Sports, University of Massachusetts-Lowell, Sep. 2018.

[6] B. S. Baumer, L. Bornn, M. Chakya, and D. Pleuler, *Academic/industry collaboration: Frontiers in sports analytics*, Fields Sports Analytics Workshop, The Fields Institute, May 2018.

[7] B. S. Baumer, R. J. Crouser, and B. Minsky, *What is the difference between data science and statistics?* Sigma Xi, Smith College, Sep. 2017.

[8] B. S. Baumer, M. Swartz, and V. Gennaro, *The value of a win*, SaberSeminar, Boston University, Aug. 2014.

[9] A. Andres, V. Gennaro, B. S. Baumer, and E. M. Van, *Baseball analytics for strategy, scouting, and decision-making*, New England Symposium on Statistics in Sports, Harvard University, Sep. 2013.

[10] *Judge*, Diamond Dollars Case Competition, New York University, Dec. 2012.

[11] B. Baumer, *Baseball analytics*, Sports Economics, Johns Hopkins University, Apr. 2012.

[12] B. S. Baumer, M. Simon, and V. Gennaro, *By the numbers: Statistics and analytics*, The 50th Anniversary of the New York Mets, Hofstra University, Apr. 2012.

[13] B. Altman, B. Harrelson, H. Poris, B. S. Baumer, T. Barra, and G. Vescey, *Commemorative panel on the 50th anniversary season of the New York Mets*, Casey Stengel Chapter of NYC Society for American Baseball Research, New York, NY, Jan. 2012.

[14] *Alumni panel discussion for students in QAC 200*, Quantitative Analysis Center, Wesleyan University, Nov. 2011.

[15] *A modern view of sabermetrics: History, context, and applications*, Sports Economics, Stern School of Business, New York University, Apr. 2010.

9 Other professional activities

9.a Grant proposals

Organization	Title	Role	Amount	Funded	Year
NSF	*The Data Science WAV: Experiential Learning with Local Community Organizations*	PI	$581,902	Yes	2019–2022
NSF	*Vertically Coherent Online Data Science Program Using R for Production Engineering*	Co-PI	$64,130	No	2019
NSF	*MRI: Revealing the Living System, an Acquisition of a Lightsheet Microscope with Big Data Processing*	Co-PI	$1,461,581	No	2018–2019
rOpenSci	*Improved Grammar for Reproducible and Painless Extract-Transform-Load Operations on Medium Data*	PI	$46,757	No	2017

9.b Blog Posts

[1] A. Y. Kim, R. J. Crouser, and B. S. Baumer, *Slack for (a)synchronous course communication*, StatTLC, May 2020. [Online]. Available: `https://stattlc.com/2020/05/29/slack-for-asynchronous-course-communication/`.

[2] B. Baumer. "Scraping the web for analytics directors." (Mar. 2016), [Online]. Available: `https://baseballwithr.wordpress.com/2016/03/15/scraping-the-web-for-analytics-directors/`.

[3] B. Baumer. "Building a hall of fame classifier." (Nov. 2014), [Online]. Available: `https://baseballwithr.wordpress.com/2014/11/18/building-a-hall-of-fame-classifier-2/`.

[4] B. Baumer. "Does good pitching beat good hitting in the playoffs?" (Oct. 2014), [Online]. Available: `https://baseballwithr.wordpress.com/2014/10/17/does-good-pitching-beat-good-hitting-in-the-playoffs-2/`.

[5] B. Baumer. "Openwar in 2014." (Aug. 2014), [Online]. Available: `https://baseballwithr.wordpress.com/2014/08/22/openwar-in-2014/`.

[6] B. Baumer. "Openwar and the defensive spectrum." (Jul. 2014), [Online]. Available: `https://baseballwithr.wordpress.com/2014/07/24/openwar-and-the-defensive-spectrum/`.

[7] B. Baumer. "Creating hexbin plots." (Jun. 2014), [Online]. Available: `https://baseballwithr.wordpress.com/2014/06/06/creating-hexbin-plots/`.

[8] B. Baumer. "Marcel the matrix." (Jun. 2014), [Online]. Available: `https://baseballwithr.wordpress.com/2014/06/25/marcel-the-matrix/`.

[9] B. Baumer. "Building an expected run matrix with openwar." (May 2014), [Online]. Available: `https://baseballwithr.wordpress.com/2014/05/01/building-an-expected-run-matrix-with-openwar/`.

9.c Events co-organized

[1] B. S. Baumer and S. LaCombe, *ASA Five College DataFest™*, University of Massachusetts, Amherst, Mar. 2023.

[2] B. S. Baumer, N. J. Horton, E. Meyers, and A. Dustin, *2nd DSC-WAV faculty development workshop*, Smith College, Jun. 2022. [Online]. Available: `https://dsc-wav.github.io/facdev22/`.

[3] B. S. Baumer, N. J. Horton, E. Meyers, and A. Dustin, *1st DSC-WAV faculty development workshop*, Smith College, Jun. 2021. [Online]. Available: `https://dsc-wav.github.io/facdev21/`.

[4] B. S. Baumer, N. J. Horton, A. Zieffler, and C. Legacy, *Facilitating team-based data science: Lessons learned from the DSC-WAV project*, Breakout session, US Conference on Teaching Statistics, virtual, Jun. 2021.

[5] A. Y. Kim and B. S. Baumer, *ASA Five College DataFest™*, University of Massachusetts, Amherst, Mar. 2019.

[6] B. S. Baumer, *Expanding the tent: Undergraduate majors in data science*, Invited Session, Joint Statistical Meetings, Vancouver, BC, Aug. 2018.

[7] B. S. Baumer, *Best practices in data science education*, Symposium on Data Science and Statistics, session organizer and chair, Reston, VA, May 2018.

[8] B. S. Baumer and M. Q. Ott, *ASA Five College DataFest™*, University of Massachusetts, Amherst, Mar. 2018.

[9] C. Pfeil, A. Foulkes, V. Barr, M. Hoopes, and B. S. Baumer, *Data science education*, Invited Session, Women in Data Science Conference, session co-organizer and chair, Boston, MA, Jan. 2018.

[10] B. S. Baumer and A. A. McNamara, *Data science at women's colleges*, Women in Statistics and Data Science Conference, session co-organizer, moderator, and chair, La Jolla, CA, Oct. 2017.

[11] B. S. Baumer and A. A. McNamara, *ASA Five College DataFest™*, University of Massachusetts, Amherst, Mar. 2017.

[12] M. Hoopes, A. Douglas, and B. Baumer, *WiDS Western Massachusetts*, WiDS livestream, Mt. Holyoke College, Feb. 2017. [Online]. Available: `https://www.mtholyoke.edu/events/66202/women-data-science-conference`.

[13] B. S. Baumer, K. Broman, and M. Çetinkaya-Rundel, *Teaching reproducible research: Inspiring new researchers to do more robust and reliable science*, American Statistical Association webinar, co-organizer and moderator, online, Nov. 2016. [Online]. Available: `https://www.amstat.org/asa/files/pdfs/EDU-ReproducibleResearchWebinarTranscript.pdf`.

[14] B. S. Baumer, *Reproducibility in statistics and data science*, Invited Session, Joint Statistical Meetings, Chicago, IL, Aug. 2016.

[15] B. S. Baumer and A. A. McNamara, *ASA Five College DataFest™*, University of Massachusetts, Amherst, Apr. 2016.

[16] C. Pattanayak, M.-W. An, B. Baumer, E. Kaparakis, C. Taylor, and A. Wagaman, *Big data: Implications for the liberal arts curriculum*, AALAC Workshop, Wellesley College, Jan. 2016.

[17] D. Lello, B. S. Baumer, R. Pruim, D. Kaplan, and N. Horton, *3rd computation and visualization consortium*, Smith College, Jul. 2015.

[18] B. S. Baumer and A. Bray, *ASA Five College DataFest™*, University of Massachusetts, Amherst, Mar. 2015.

[19] B. S. Baumer and A. Bray, *Five College DataFest*, University of Massachusetts, Amherst, Mar. 2014.

[20] B. S. Baumer, *Using r markdown for integrating reproducibility tools into an introductory statistics course*, Roundtable Discussion, Section on Statistical Education, Joint Statistical Meetings, Montreal, Canada, Aug. 2013.

[21] R. Pruim, D. Kaplan, N. Horton, and B. S. Baumer, *Changing to r in an introductory statistics course*, Breakout session, US Conference on Teaching Statistics, Raleigh, NC, May 2013.

9.d Workshops attended

[1] *Data for black lives*, livestream, MIT, Nov. 2017.

[2] *PKAL/TIDES pre-conference workshop on diversity, equity, and inclusion*, AAC&U Transforming STEM Higher Education, Boston, MA, Nov. 2016.

[3] *Undergraduate faculty program*, Park City Mathematics Institute, Park City, UT, Jul. 2016.

[4] *TIER faculty development workshop*, Project TIER, Haverford College, Apr. 2016.

[5] *Tides summer institute*, TIDES, Georgetown University, Jun. 2015.

[6] *Pkal/tides pre-conference workshop on cultural competency*, AAC&U Transforming STEM Higher Education, Atlanta, GA, Nov. 2014.

[7] *Hierarchical bayesian modeling and analysis for spatial data*, Professional Development Continuing Education Course, Boston, MA, Aug. 2014.

[8] *Tackling the challenges of big data*, Online X Programs, Mar. 2014.

[9] *"big data" and data mining for mathematicians*, MAA-PREP, Williams College, Jun. 2013.

[10] *Short course: Bayesian methods for data analysis (with emphasis on clinical trials)*, Boston Chapter of the ASA, Boston, MA, Jun. 2013.

[11] *How to implement a randomization-based introductory statistics course: The CATALST curriculum*, USCOTS, Raleigh, NC, May 2013.

[12] *Teaching the statistical investigation process with randomization-based inference*, USCOTS, Raleigh, NC, May 2013.

[13] *Beyond introductory statistics: Generalized linear and multilevel models*, MAA-PREP, Kenyon College, Jul. 2012.

[14] *Modeling: Early and often in introductory calculus*, MAA-PREP, Calvin College, Jul. 2012.

[15] *Summer workshop on a project-based introductory statistics curriculum*, Wesleyan University, Jul. 2012.

[16] *Discrete and computational geometry*, Short Course, Joint Mathematical Meetings, Boston, MA, Jan. 2012.

[17] *Summer workshop on inquiry-based statistics education*, Wesleyan University, Jul. 2011.

[18] *Combinatorial geometry workshop*, IPAM Combinatorics: Methods and Applications in Mathematics and Computer Science, Institute for Pure and Applied Mathematics, UCLA, Oct. 2009.

9.e Refereeing papers

Note: Please see my Publons profile (`http://publons.com/author/1553312/`) for more information.

Journal	**Year**

Journal of Quantitative Analysis in Sports	2012–present
Journal of Statistics & Data Science Education	2013–present
The American Statistician	2016–present
Technology Innovations in Statistics Education	2016–present
INFORMS Transactions on Education	2022
National Academies of Sciences, Engineering, and Medicine	2020
Teaching Statistics	2020–2021
Harvard Data Science Review	2019–2021
IEEE Transactions on Mobile Computing	2013–2017
The Mathematical Ingelligencer	2018
IEEE Computer Graphics and Applications	2016
American Political Thought	2016
MIT Sloan Sports Analytics	2016
Transactions on Knowledge and Data Engineering	2014
Transactions on Sensor Networks	2012–2013
IEEE Journal on Selected Areas in Communications	2012
By The Numbers: Newsletter of the SABR Statistics Committee	2004–present

9.f Professional statistical consulting

Organization	**Year**
Racial Equity Partners	2022
Major League Baseball Players Association	2019
RStudio, Inc.	2018
MassMutual Data Science Development Program	2014–2018
MVP Sports Group	2018
Christine Doktor for State Representative	2018
MassMutual Data Science Development Program, *Academic Advisory Board*	2014–2017
New England Patriots	2014
?What If! Innovation	2012, 2014
New York Mets	2012–2013
CUNY Research Foundation	2012–2013

9.g External service

Role	**Organization**	**Year**
Co-editor	*Journal of Quantitative Analysis in Sports*	2022–present
Associate Editor	*Journal of Quantitative Analysis in Sports*	2012–present
Member	ASA DataFest Core	2014–present
Secretary/Treasurer	Five College Statistics	2019–2022
MAA Board Representative	ASA-MAA Joint Committee on Statistics Education	2020–2023
Program Chair	ASA Section on Statistics in Sports	2022
External Program Review	St. Olaf College (MSCS)	2022
External Program Review	Wesleyan University (QAC)	2022
External Program Review	Macalester College (MSCS)	2022
Program Observer	ABET data science accreditation	2021

University Partner Advisor	Jeremiah E. Burke Sports Analytics Club	2020–2021
Program Chair-Elect	ASA Section on Statistics in Sports	2021
External Program Review	Simmons College (Statistics)	2020
Member	Data Science for Common Good Advisory Board, UMass Center for Data Science	2019–2020
Member	ASA Data Science Ad Hoc Advisory Committee	2019–2020
Current Committee	ASA Section on Statistics Education	2018–2019
Council of Sections Rep	ASA Section on Statistical Learning and Data Science	2017–2019
Program Committee	ASA Symposium on Data Science and Statistics, co-sponsored by the Interface Foundation of North America	2018
Smith representative	Five College Statistics	2016–2017
Director	Five College Statistics	2015–2016
Webmaster	Five College Statistics	2013–2015

9.h Doctoral service

Role	Candidate	University	Field	Year
External Reader	Jesse Jeter	The George Washington University	Statistics	2018

10 Professional memberships

Organization	Year
Sigma Xi	2013–present
Society for American Baseball Research (SABR)	2012–present
Mathematical Association of America (MAA)	2012–present
American Statistical Association (ASA)	2009–present
Association for Computing Machinery (ACM)	2011–2015
American Mathematical Society (AMS)	2005–2015
Institute for Operations Research and the Management Sciences (INFORMS)	2010