

CURRICULUM VITAE

JAMES A. MARSHALL REBER¹

PERSONAL INFORMATION

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EDUCATION

AUGUST 2015 - NOW BACHELOR OF SCIENCE in MATHEMATICS, STATISTICS WITH
MATH EMPHASIS, and MATHEMATICAL STATISTICS
Purdue University, West Lafayette, IN
MENTOR: [Dr. David McREYNOLDS](#)
ADVISOR: [Dr. Peter SUSALLA](#)
MAJOR GPA: **3.97**, CUMULATIVE GPA: **3.94**

AUGUST 2011 - MAY 2015 HIGH SCHOOL DIPLOMA
South Side High School, Fort Wayne, IN
GPA: **4.00**, Graduated 6th in class

RESEARCH EXPERIENCES

JUN - JUL 2018	Bounding Mixing Times for Various Combinatorial Objects INDIANA UNIVERSITY Worked with Dr. Graham WHITE on bounding mixing times for a variety of different combinatorial objects at the Indiana University Math REU . Presented at the 2018 Indiana Undergraduate Mathematics Research Conference . The write up for the project can be found here .
DEC 2016	Benford's Law and Voter Fraud PURDUE UNIVERSITY Worked on the R code for a project with Michael Smith and Angel Valentin which analyzed whether or not vote fraud was committed using Benford's Law. The paper can be found here .
AUG 2016 - AUG 2017	Methods for Improving the Lower Bound of $R(5, 5)$. PURDUE UNIVERSITY Worked with Dr. David McREYNOLDS on developing algorithms and methodologies to improve on the lower bound for the Fifth Ramsey number for the 2016-2017 Statistics LLC organized by Dr. Mark WARD . Presented results at the 2017 Chicago MathFest conference . Implementations of the methods can be found here .
JUN - JUL 2016	Survey on the Continuum Random Tree PURDUE UNIVERSITY Worked with Dr. Fabrice BAUDOUIN writing a survey paper on the Continuum Random Tree for undergraduates. Also sat in/participated in the PRiME REU with Dr. Jonathon PETERSON . Ended the summer by attending the Summer School in Probability at NORTHWESTERN UNIVERISTY . The paper can be found here .

¹Last updated January, 2019.

TEACHING EXPERIENCES

AUG 2017 - MAY 2018	Teaching Assistant PURDUE UNIVERSITY Graded for MA 265 (Linear Algebra) in the fall semester of 2017, was an undergraduate TA for MA 161 IMPACT in the fall semester of 2018, and taught the lab for MA 366 (Ordinary Differential Equations) in the fall and spring semesters of 2018.
APR 2017 - MAY 2017	Assisting High Schoolers JEFFERSON HIGH SCHOOL Went to a local high school in West Lafayette to help students prepare for their end of course assessments in Algebra I.
AUG 2013 - NOW	Tutoring PURDUE UNIVERSITY and IPFW Tutored one-on-one with a variety of students in classes ranging from Calculus to Abstract Algebra.

OTHER EXPERIENCES²

OCT 2018	International Conference on Advances in Interdisciplinary Statistics and Combinatorics UNC GREENSBORO Presented a twenty minute talk of my work with Dr. Graham WHITE at the 2018 International Conference on Advances in Interdisciplinary Statistics and Combinatorics . The presentation can be found here .
JUL 2018	Indiana Undergraduate Mathematics Research Conference INDIANA UNIVERSITY Presented a twenty minute talk of my work with Dr. Graham WHITE at the 2018 Indiana Undergraduate Mathematics Research Conference . The presentation can be found here .
AUG 2017 - MAY 2018	Treasurer of the ASA Purdue Chapter PURDUE UNIVERSITY Helped organize funds as well as events for the American Statistical Society chapter at Purdue University .
JUL 2017	Chicago MathFest CHICAGO Presented a fifteen minute talk of my work with Dr. David McREYNOLDS at the 2017 Chicago MathFest conference . The presentation can be found here .
APR 2017	4th Lake Michigan Workshop on Combinatorics and Graph Theory WESTERN MICHIGAN UNIVERSITY Attended the 4th Lake Michigan Workshop on Combinatorics and Graph Theory .
APR 2017	Purdue Datafest PURDUE UNIVERSITY Participated in the Purdue University Datafest competition with Michael Smith, Miranda Champion, Jack Good, and Simon Langowski. Recieved the award, "Best Use of Outside Data."

²Includes things like leadership positions, volunteering positions, competitions I participated in, workshops I attended, and conferences I attended or presented at.

OTHER EXPERIENCES (CONT.)

SEP 2016/2017	Geometry, Groups, and Dynamics (2016) ROSE-HULMAN INSTITUTE OF TECHNOLOGY (2017) UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN Attended the 2016 Fall Geometry, Groups, and Dynamics Workshop and the 2017 Fall Geometry, Groups, and Dynamics Workshop .
SEP 2016	EMV Leadership Retreat PURDUE UNIVERSITY Participated in the 2016 EMV Leadership retreat . Spent a weekend learning about various leadership strategies and developing my skills as a leader.
AUG 2016 - NOW	Team Leader for Wabash Landing Street Team PURDUE UNIVERSITY Went out on the streets and helped find homeless people and find them housing. As a team leader for Street Team , I helped lead groups of people as well as help organize events.
APR 2016/2017	2016/2017 Rose-Hulman Undergraduate Mathematics Conference ROSE-HULMAN INSTITUTE OF TECHNOLOGY Attended the 2016 Rose-Hulman Undergraduate Mathematics Conference and 2017 Rose-Hulman Undergraduate Mathematics Conference .
MAR 2016/2017	MATHCOUNTS Volunteer PURDUE UNIVERSITY Volunteered with setting up and grading at the MATHCOUNTS competition for middle schoolers.

SCHOLARSHIPS, AWARDS, AND CERTIFICATES

2018	Jerison Memorial Award in Analysis (Top Analysis Student of the Year) (\$400)
2018	Junior Outstanding Student Award
2018	Mu Sigma Rho (National Statistics Honor Society)
2017 - 2018	Ellen Aldag Sawyer Memorial Scholarship (\$1,300)
2017 - 2018	Andris A. Zoltners Math Scholarship (\$6,100)
2017	Schenkman Memorial Award (Top Algebra Student of the Year) (\$400)
2016 - 2017	Virginia Mashin Math Scholarship (\$4,289)
2016 - 2017	Statistics LLC (\$10,000)
2016	Freshman Outstanding Student Award
2016	Magna Cum Laude on the National Latin Exam
2015 - 2019	Presidential Scholar (\$16,000)
2015 - 2019	Lilly Scholar (\$40,000)
2015 - 2016	TG Alford Alumni Scholarship (\$100)
2015 - 2016	Arthur Rosenthal Scholarship (\$3,000)
2015 - 2016	Robert and Marcella Phillips (\$2,765)
2015 - 2016	J and MJ Schlp ICM (\$1,800)
2015 - 2016	Access and Success Incentive Grant (\$500)
2015 - 2018	Dean's List and Semester Honors
2015	IB Certificate in Mathematics and History

LANGUAGES

ENGLISH:	Native Language
FRENCH:	Basic Knowledge
LATIN:	Basic Knowledge

COMPUTER SKILLS

Basic Knowledge: MySQL, LINUX, UBUNTU, C, C++, JAVA, JAVASCRIPT, HASKELL

Intermediate Knowledge: PYTHON (Flask, Networkx), BASH, \LaTeX , R (ggplot2, Selenium, stringr, ggmap, Shiny)

My GitHub can be found [here](#).

INTERESTS AND ACTIVITIES

Within the classroom, I enjoy learning about Combinatorics, Probability, Algebra, Topology, and Geometry (though I enjoy really any math). Beyond the classroom, I enjoy hiking, swimming, reading, and learning about new technology/programming languages.

COURSES IN MATHEMATICS AND STATISTICS³

CLASS	TEXTBOOK	GRADE	CREDIT HRS
(CS 160) Intro to Comp Sci	Starting Out With Java	A	4
(MA 165) Analytic Geometry & Calc I	N/A (took in high school)	A	4
(MA 166) Analytic Geometry & Calc II	Calculus: Early Transcendentals	A	4
(MA 261) Multivariate Calc	Calculus: Early Transcendentals	A+	4
(STAT 290) Big Data Analysis	Class notes can be found here	A	3
(MA 341) Foundations of Analysis	An Introduction to Real Analysis	A-	3
(STAT 350) Intro to Statistics	Introductory Statistics	A+	4
(MA 351) Elementary Linear Algebra	Class notes can be found here	A+	4
(MA 362) Topics in Vector Calculus	Vector Calculus	A+	3
(MA 366) Ordinary Differential Equations	Elementary Differential Equations	A+	4
(MA 373) Financial Mathematics	None	A	3
(MA 375) Intro to Discrete Math	Class notes can be found here	A+	3
(MA 416) Probability	Class notes can be found here	A+	3
(STAT 417) Statistical Theory	Probability and Statistics	A+	3
(MA 425) Elementary Complex Analysis	Fundamentals of Complex Analysis	A	3
(MA 453) Algebra I	A Book of Abstract Algebra	A	3
(MA 454) Galois Theory	Class notes can be found here	A+	3
(MA 490) Advanced Linear Algebra	None	A	3
(MA 490) Advanced Topics in Math	None	A	3
(MA 490) Lattices in Lie Groups	None	N/A	3
(STAT 512) Applied Regression Analysis	Applied Linear Regression	N/A	3
(MA 557) Abstract Algebra I	Introduction to Commutative Algebra	A	3
(MA 562) Intro to Diff Geometry & Topology	Class notes can be found here	N/A	3
(MA 584) Algebraic Number Theory	Algebraic Number Theory	A	3
(STAT 598) Analytic Combinatorics I	Analytic Combinatorics	A	3
(STAT 598) Analytic Combinatorics II/III	Analytic Combinatorics	A	3

³N/A means I'm currently taking the course.