Steven A Frank

List of Publications by Year
in descending order

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156 papers	11,951 citations	28274 55 h-index	33894 99 g-index
177 all docs	177 docs citations	177 times ranked	7670 citing authors

#	Article	IF	Citations
1	Models of Parasite Virulence. Quarterly Review of Biology, 1996, 71, 37-78.	0.1	1,191
2	How to Make a Kin Selection Model. Journal of Theoretical Biology, 1996, 180, 27-37.	1.7	514
3	Sex Allocation Theory for Birds and Mammals. Annual Review of Ecology, Evolution, and Systematics, 1990, 21, 13-55.	6.7	374
4	Mutual policing and repression of competition in the evolution of cooperative groups. Nature, 1995, 377, 520-522.	27.8	328
5	The Evolutionary Dynamics of Cytoplasmic Male Sterility. American Naturalist, 1989, 133, 345-376.	2.1	323
6	George Priceâ€™s contributions to evolutionary genetics. Journal of Theoretical Biology, 1995, 175, 373-388.	1.7	264
7	REPRESSION OF COMPETITION AND THE EVOLUTION OF COOPERATION. Evolution; International Journal of Organic Evolution, 2003, 57, 693-705.	2.3	228
8	THE PRICE EQUATION, FISHER'S FUNDAMENTAL THEOREM, KIN SELECTION, AND CAUSAL ANALYSIS. Evolution; International Journal of Organic Evolution, 1997, 51, 1712-1729.	2.3	223
9	Evolution in a Variable Environment. American Naturalist, 1990, 136, 244-260.	2.1	222
10	DIVERGENCE OF MEIOTIC DRIVEâ€SUPPRESSION SYSTEMS AS AN EXPLANATION FOR SEXâ€BIASED HYBRID STERILITY AND INVIABILITY. Evolution; International Journal of Organic Evolution, 1991, 45, 262-267.	2.3	221
11	Hierarchical selection theory and sex ratios I. General solutions for structured populations. Theoretical Population Biology, 1986, 29, 312-342.	1.1	215
12	Dispersal polymorphisms in subdivided populations. Journal of Theoretical Biology, 1986, 122, 303-309.	1.7	208
13	PERSPECTIVE: REPRESSION OF COMPETITION AND THE EVOLUTION OF COOPERATION. Evolution; International Journal of Organic Evolution, 2003, 57, 693.	2.3	205
14	Fisher's fundamental theorem of natural selection. Trends in Ecology and Evolution, 1992, 7, 92-95.	8.7	199
15	The common patterns of nature. Journal of Evolutionary Biology, 2009, 22, 1563-1585.	1.7	187
16	Coevolutionary genetics of plants and pathogens. Evolutionary Ecology, 1993, 7, 45-75.	1.2	186
17	Pathogenesis, Virulence, and Infective Dose. PLoS Pathogens, 2007, 3, e147.	4.7	180
18	Genetics of Mutualism: The Evolution of Altruism between Species. Journal of Theoretical Biology, 1994, 170, 393-400.	1.7	178

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19	Individual and population sex allocation patterns. Theoretical Population Biology, 1987, 31, 47-74.	1.1	161
20	Somatic evolutionary genomics: Mutations during development cause highly variable genetic mosaicism with risk of cancer and neurodegeneration. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 1725-1730.	7.1	154
21	Natural selection. IV. The Price equation*. Journal of Evolutionary Biology, 2012, 25, 1002-1019.	1.7	140
22	HIERARCHICAL SELECTION THEORY AND SEX RATIOS. II. ON APPLYING THE THEORY, AND A TEST WITH FIG WASPS. Evolution; International Journal of Organic Evolution, 1985, 39, 949-964.	2.3	136
23	Spatial polymorphism of bacteriocins and other allelopathic traits. Evolutionary Ecology, 1994, 8, 369-386.	1.2	127
24	The Price Equation, Fisher's Fundamental Theorem, Kin Selection, and Causal Analysis. Evolution; International Journal of Organic Evolution, 1997, 51, 1712.	2.3	127
25	Variable sex ratio among colonies of ants. Behavioral Ecology and Sociobiology, 1987, 20, 195-201.	1.4	124
26	Ecological and genetic models of host-pathogen coevolution. Heredity, 1991, 67, 73-83.	2.6	119
27	Divergence of Meiotic Drive-Suppression Systems as an Explanation for Sex- Biased Hybrid Sterility and Inviability. Evolution; International Journal of Organic Evolution, 1991, 45, 262.	2.3	115
28	Somatic Mutation of p53 Leads to Estrogen Receptor Î±-Positive and -Negative Mouse Mammary Tumors with High Frequency of Metastasis. Cancer Research, 2004, 64, 3525-3532.	0.9	114
29	Problems of somatic mutation and cancer. BioEssays, 2004, 26, 291-299.	2.5	107
30	Genetic predisposition to cancer â€" insights from population genetics. Nature Reviews Genetics, 2004, 5, 764-772.	16.3	106
31	Natural selection maximizes Fisher information. Journal of Evolutionary Biology, 2009, 22, 231-244.	1.7	102
32	Pathogen escape from host immunity by a genome program for antigenic variation. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 18290-18295.	7.1	101
33	Natural selection. V. How to read the fundamental equations of evolutionary change in terms of information theory. Journal of Evolutionary Biology, 2012, 25, 2377-2396.	1.7	99
34	Mechanisms of pathogenesis and the evolution of parasite virulence. Journal of Evolutionary Biology, 2008, 21, 396-404.	1.7	92
35	Policing and group cohesion when resources vary. Animal Behaviour, 1996, 52, 1163-1169.	1.9	91
36	Natural selection. <scp>VII</scp>. History and interpretation of kin selection theory. Journal of Evolutionary Biology, 2013, 26, 1151-1184.	1.7	90

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37	Coevolutionary genetics of hosts and parasites with quantitative inheritance. Evolutionary Ecology, 1994, 8, 74-94.	1.2	81
38	Developmental predisposition to cancer. Nature, 2003, 422, 494-494.	27.8	81
39	Input-output relations in biological systems: measurement, information and the Hill equation. Biology Direct, 2013, 8, 31.	4.6	77
40	EVOLUTION OF HOSTâ€PARASITE DIVERSITY. Evolution; International Journal of Organic Evolution, 1993, 47, 1721-1732.	2.3	74
41	Sex ratio under conditional sex expression. Journal of Theoretical Biology, 1988, 135, 415-418.	1.7	73
42	A general model of the public goods dilemma. Journal of Evolutionary Biology, 2010, 23, 1245-1250.	1.7	73
43	DEMOGRAPHY AND SEX RATIO IN SOCIAL SPIDERS. Evolution; International Journal of Organic Evolution, 1987, 41, 1267-1281.	2.3	72
44	Age-specific incidence of inherited versus sporadic cancers: A test of the multistage theory of carcinogenesis. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 1071-1075.	7.1	72
45	The Origin of Synergistic Symbiosis. Journal of Theoretical Biology, 1995, 176, 403-410.	1.7	69
46	All of life is social. Current Biology, 2007, 17, R648-R650.	3.9	68
47	Multivariate Analysis of Correlated Selection and Kin Selection, with an ESS Maximization Method. Journal of Theoretical Biology, 1997, 189, 307-316.	1.7	67
48	Quantifying Interhospital Patient Sharing as a Mechanism for Infectious Disease Spread. Infection Control and Hospital Epidemiology, 2010, 31, 1160-1169.	1.8	65
49	The genetic value of sons and daughters. Heredity, 1986, 56, 351-354.	2.6	63
50	Dynamics of Cytoplasmic Incompatability with MultipleWolbachiaInfections. Journal of Theoretical Biology, 1998, 192, 213-218.	1.7	63
51	Statistical properties of polymorphism in host?parasite genetics. Evolutionary Ecology, 1996, 10, 307-317.	1.2	62
52	Spatial variation in coevolutionary dynamics. Evolutionary Ecology, 1991, 5, 193-217.	1.2	61
53	Somatic selection for and against cancer. Journal of Theoretical Biology, 2003, 225, 377-382.	1.7	61
54	The Design of Adaptive Systems: Optimal Parameters for Variation and Selection in Learning and Development. Journal of Theoretical Biology, 1997, 184, 31-39.	1.7	59

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55	Age-Specific Acceleration of Cancer. Current Biology, 2004, 14, 242-246.	3.9	59
56	Host Control of Symbiont Transmission: The Separation of Symbionts Into Germ and Soma. American Naturalist, 1996, 148, 1113-1124.	2.1	59
57	Natural selection. I. Variable environments and uncertain returns on investment*. Journal of Evolutionary Biology, 2011, 24, 2299-2309.	1.7	56
58	Patterns of Cell Division and the Risk of Cancer. Genetics, 2003, 163, 1527-1532.	2.9	56
59	Nonheritable Cellular Variability Accelerates the Evolutionary Processes of Cancer. PLoS Biology, 2012, 10, e1001296.	5.6	55
60	Within-host Spatial Dynamics of Viruses and Defective Interfering Particles. Journal of Theoretical Biology, 2000, 206, 279-290.	1.7	54
61	Specific and Non-specific Defense against Parasitic Attack. Journal of Theoretical Biology, 2000, 202, 283-304.	1.7	53
62	Natural selection. II. Developmental variability and evolutionary rate*. Journal of Evolutionary Biology, 2011, 24, 2310-2320.	1.7	52
63	Natural selection. III. Selection versus transmission and the levels of selection*. Journal of Evolutionary Biology, 2012, 25, 227-243.	1.7	51
64	Polymorphism of attack and defense. Trends in Ecology and Evolution, 2000, 15, 167-171.	8.7	50
65	Somatic Mosaicism and Disease. Current Biology, 2014, 24, R577-R581.	3.9	50
66	Stochastic elimination of cancer cells. Proceedings of the Royal Society B: Biological Sciences, 2003, 270, 2017-2024.	2.6	49
67	The trade-off between rate and yield in the design of microbial metabolism. Journal of Evolutionary Biology, 2010, 23, 609-613.	1.7	49
68	Population and Quantitative Genetics of Regulatory Networks. Journal of Theoretical Biology, 1999, 197, 281-294.	1.7	46
69	Pathology from evolutionary conflict, with a theory of X chromosome versus autosome conflict over sexually antagonistic traits. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 10886-10893.	7.1	42
70	Cytoplasmic Incompatibility and Population Structure. Journal of Theoretical Biology, 1997, 184, 327-330.	1.7	41
71	Maladaptation and the Paradox of Robustness in Evolution. PLoS ONE, 2007, 2, e1021.	2.5	41
72	A MODEL OF INDUCIBLE DEFENSE. Evolution; International Journal of Organic Evolution, 1993, 47, 325-327.	2.3	40

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73	Within-host dynamics of antigenic variation. Infection, Genetics and Evolution, 2006, 6, 141-146.	2.3	37
74	A model for the sequential dominance of antigenic variants in African trypanosome infections. Proceedings of the Royal Society B: Biological Sciences, 1999, 266, 1397-1401.	2.6	36
75	Problems inferring the specificity of plant?pathogen genetics. Evolutionary Ecology, 1996, 10, 323-325.	1.2	35
76	Multiplicity of infection and the evolution of hybrid incompatibility in segmented viruses. Heredity, 2001, 87, 522-529.	2.6	34
77	Genetic variation in cancer predisposition: Mutational decay of a robust genetic control network. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 8061-8065.	7.1	34
78	Generative models versus underlying symmetries to explain biological pattern. Journal of Evolutionary Biology, 2014, 27, 1172-1178.	1.7	34
79	The distribution of allelic effects under mutation and selection. Genetical Research, 1990, 55, 111-117.	0.9	32
80	Genetic variation of polygenic characters and the evolution of genetic degeneracy. Journal of Evolutionary Biology, 2003, 16, 138-142.	1.7	32
81	Measurement Invariance, Entropy, and Probability. Entropy, 2010, 12, 289-303.	2.2	32
82	HALDANE'S RULE: A DEFENSE OF THE MEIOTIC DRIVE THEORY. Evolution; International Journal of Organic Evolution, 1991, 45, 1714-1717.	2.3	30
83	Somatic mosaicism and cancer: inference based on a conditional Luriaâ€“DelbrÃ¼ck distribution. Journal of Theoretical Biology, 2003, 223, 405-412.	1.7	28
84	A simple derivation and classification of common probability distributions based on information symmetry and measurement scale. Journal of Evolutionary Biology, 2011, 24, 469-484.	1.7	28
85	Sex Allocation in Solitary Bees and Wasps. American Naturalist, 1995, 146, 316-323.	2.1	27
86	Immune Response to Parasitic Attack: Evolution of a Pulsed Character. Journal of Theoretical Biology, 2002, 219, 281-290.	1.7	27
87	Wrightâ€™s Adaptive Landscape Versus Fisherâ€™s Fundamental Theorem. , 2013, , 41-57.		24
88	Barriers to antigenic escape by pathogens: trade-off between reproductive rate and antigenic mutability. BMC Evolutionary Biology, 2007, 7, 229.	3.2	23
89	Demography and the tragedy of the commons. Journal of Evolutionary Biology, 2010, 23, 32-39.	1.7	23
90	Microbial secretorâ€“cheater dynamics. Philosophical Transactions of the Royal Society B: Biological Sciences, 2010, 365, 2515-2522.	4.0	23

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91	Sexual antagonism leads to a mosaic of Xâ€autosome conflict. Evolution; International Journal of Organic Evolution, 2020, 74, 495-498.	2.3	23
92	A Hierarchical View of Sex-Ratio Patterns. Florida Entomologist, 1983, 66, 42.	0.5	22
93	Measurement scale in maximum entropy models of species abundance. Journal of Evolutionary Biology, 2011, 24, 485-496.	1.7	22
94	Evolution: Mitochondrial Burden on Male Health. Current Biology, 2012, 22, R797-R799.	3.9	21
95	Evolution of Robustness and Cellular Stochasticity of Gene Expression. PLoS Biology, 2013, 11, e1001578.	5.6	21
96	Somatic Mutation: Early Cancer Steps Depend on Tissue Architecture. Current Biology, 2003, 13, R261-R263.	3.9	20
97	How to Read Probability Distributions as Statements about Process. Entropy, 2014, 16, 6059-6098.	2.2	20
98	The Price Equation Program: Simple Invariances Unify Population Dynamics, Thermodynamics, Probability, Information and Inference. Entropy, 2018, 20, 978.	2.2	20
99	A Model of Inducible Defense. Evolution; International Journal of Organic Evolution, 1993, 47, 325.	2.3	19
100	Natural selection. VI. Partitioning the information in fitness and characters by path analysis. Journal of Evolutionary Biology, 2013, 26, 457-471.	1.7	18
101	A multistage theory of age-specific acceleration in human mortality. BMC Biology, 2004, 2, 16.	3.8	17
102	Are Mating and Mate Competition by the Fig Wasp Pegoscapus assuetus (Agaonidae) Random within a Fig?. Biotropica, 1985, 17, 170.	1.6	16
103	Developmental selection and self-organization. BioSystems, 1997, 40, 237-243.	2.0	16
104	Universal expressions of population change by the <scp>P</scp>rice equation: Natural selection, information, and maximum entropy production. Ecology and Evolution, 2017, 7, 3381-3396.	1.9	16
105	POLYMORPHISM OF BACTERIAL RESTRICTIONâ€MODIFICATION SYSTEMS: THE ADVANTAGE OF DIVERSITY. Evolution; International Journal of Organic Evolution, 1994, 48, 1470-1477.	2.3	15
106	The probability of severe disease in zoonotic and commensal infections. Proceedings of the Royal Society B: Biological Sciences, 2001, 268, 53-60.	2.6	15
107	Weapons and fighting in fig wasps. Trends in Ecology and Evolution, 1987, 2, 259-260.	8.7	14
108	Programmed Cell Death and Hybrid Incompatibility. , 2003, 94, 181-183.		13

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109	Microbial Evolution: Regulatory Design Prevents Cancer-like Overgrowths. Current Biology, 2013, 23, R343-R346.	3.9	13
110	Measurement invariance explains the universal law of generalization for psychological perception. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 9803-9806.	7.1	12
111	Evolution of negative immune regulators. PLoS Pathogens, 2019, 15, e1007913.	4.7	10
112	When to copy or avoid an opponent's strategy. Journal of Theoretical Biology, 1990, 145, 41-46.	1.7	9
113	Evolutionary design of regulatory control. II. Robust error-correcting feedback increases genetic and phenotypic variability. Journal of Theoretical Biology, 2019, 468, 72-81.	1.7	9
114	The Generalized Price Equation: Forces That Change Population Statistics. Frontiers in Ecology and Evolution, 2020, 8, .	2.2	9
115	A TOUCHSTONE IN THE STUDY OF ADAPTATION. Evolution; International Journal of Organic Evolution, 2002, 56, 2561-2564.	2.3	8
116	Evolutionary Foundations of Cooperation and Group Cohesion. Springer Series in Game Theory, 2009, , 3-40.	0.2	8
117	Commentary: Mathematical models of cancer progression and epidemiology in the age of high throughput genomics. International Journal of Epidemiology, 2004, 33, 1179-1181.	1.9	7
118	Evolutionary dynamics of redundant regulatory control. Journal of Theoretical Biology, 2008, 255, 64-68.	1.7	7
119	Increasing resource specialization among competitors shifts control of diversity from local to spatial processes. Ecology Letters, 1998, 1, 3-5.	6.4	7
120	The invariances of power law size distributions. F1000Research, 2016, 5, 2074.	1.6	7
121	The invariances of power law size distributions. F1000Research, 2016, 5, 2074.	1.6	7
122	The Fundamental Equations of Change in Statistical Ensembles and Biological Populations. Entropy, 2020, 22, 1395.	2.2	6
123	Increasing resource specialization among competitors shifts control of diversity from local to spatial processes. Ecology Letters, 1998, 1, 3-5.	6.4	6
124	Microbial metabolism: optimal control of uptake versus synthesis. PeerJ, 2014, 2, e267.	2.0	6
125	Receptor uptake arrays for vitamin B₁₂, siderophores, and glycans shape bacterial communities. Ecology and Evolution, 2017, 7, 10175-10195.	1.9	5
126	Evolutionary design of regulatory control. I. A robust control theory analysis of tradeoffs. Journal of Theoretical Biology, 2019, 463, 121-137.	1.7	5

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127	Puzzles in modern biology. V. Why are genomes overwired?. F1000Research, 2017, 6, 924.	1.6	5
128	A biochemical logarithmic sensor with broad dynamic range. F1000Research, 2018, 7, 200.	1.6	5
129	The common patterns of abundance: the log series and Zipf's law. F1000Research, 2019, 8, 334.	1.6	5
130	Puzzles in modern biology. V. Why are genomes overwired?. F1000Research, 2017, 6, 924.	1.6	5
131	The Male-Female Pay Gap Driven by Coupling between Labor Markets and Mating Markets. Journal of Bioeconomics, 2006, 8, 269-274.	3.3	4
132	Commentary: The nature of cancer research. International Journal of Epidemiology, 2016, 45, 638-645.	1.9	4
133	Developmental Mutators and Early Onset Cancer. Frontiers in Pediatrics, 2020, 8, 189.	1.9	4
134	Invariance in ecological pattern. F1000Research, 2019, 8, 2093.	1.6	4
135	Invariant death. F1000Research, 2016, 5, 2076.	1.6	4
136	Age-specific acceleration in malignant melanoma. F1000Research, 2017, 6, 27.	1.6	4
137	Kinetics of cancer: a method to test hypotheses of genetic causation. BMC Cancer, 2005, 5, 163.	2.6	3
138	Metabolic Heat in Microbial Conflict and Cooperation. Frontiers in Ecology and Evolution, 2020, 8, .	2.2	3
139	Simple unity among the fundamental equations of science. Philosophical Transactions of the Royal Society B: Biological Sciences, 2020, 375, 20190351.	4.0	3
140	Recognition and polymorphism in host-parasite genetics. , 1997, , 13-23.		3
141	Age-specific acceleration in malignant melanoma. F1000Research, 2017, 6, 27.	1.6	3
142	Puzzles in modern biology. IV. Neurodegeneration, localized origin and widespread decay. F1000Research, 2016, 5, 2537.	1.6	3
143	A biochemical logarithmic sensor with broad dynamic range. F1000Research, 2018, 7, 200.	1.6	3
144	Evolution and immunology of infectious diseases: whatâ€™s new?. Infection, Genetics and Evolution, 2004, 4, 69-75.	2.3	2

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145	The Inductive Theory of Natural Selection. SSRN Electronic Journal, 2014, , .	0.4	2
146	How to Understand Behavioral Patterns in Big Data: The Case of Human Collective Memory. Behavioral Sciences (Basel, Switzerland), 2019, 9, 40.	2.1	2
147	How to Read Probability Distributions as Statements About Process. SSRN Electronic Journal, 0, , .	0.4	2
148	Puzzles in modern biology. II. Language, cancer and the recursive processes of evolutionary innovation. F1000Research, 2016, 5, 2289.	1.6	2
149	Inheritance of cancer. Discovery Medicine, 2004, 4, 396-400.	0.5	2
150	Puzzles in modern biology. III. Two kinds of causality in age-related disease. F1000Research, 2016, 5, 2533.	1.6	1
151	Puzzles in modern biology. III.Two kinds of causality in age-related disease. F1000Research, 2016, 5, 2533.	1.6	1
152	Evolution of Antigenic Variation. , 0, , 225-242.		0
153	Universal Expressions of Population Change by the Price Equation: Natural Selection, Information, and Maximum Entropy Production. SSRN Electronic Journal, 0, , .	0.4	0
154	Puzzles in modern biology. I. Male sterility, failure reveals design. F1000Research, 2016, 5, 2288.	1.6	0
155	Occupational Immunity and Natural Vaccination. SSRN Electronic Journal, 0, , .	0.4	0
156	How to Understand Common Patterns in Big Data: The Case of Human Collective Memory. SSRN Electronic Journal, 0, , .	0.4	0