



# JONATHAN ARNOLD

Professor: Erdos Number: 2

## Curriculum Vita

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### FIELD OF ENDEAVOR

**Systems Biology**

### VIDEO OF RESEACH

<http://www.youtube.com/watch?v=A18OnmSsCAA>

### INTERNATIONAL LEADERSHIP

**Fungal Genome Initiative Steering Committee**  
**Neurospora Genomics Working Group**  
**Pneumocystis Genome Project Steering Committee**  
**Aspergillus fumigatus Genomics Steering Committee**  
**Advisor to Burroughs-Wellcome Fund on Fungal Genomics**  
**NIH Genome Study Section (ad hoc)**  
**NIH Genetics Study Section (ad hoc)**  
**NIH GCAT Study Section (ad hoc)**  
**Charter Member of NIH Genetic Variation and Evolution (GVE) study section, 2005-2008**

### ACADEMIC DEGREES

PhD	1982	Statistics	Yale University
MPhil	1978	Statistics	Yale University
BS	1975	Mathematics	Yale University

### TITLE OF DOCTORAL DISSERTATION

**Statistics of Natural Populations: Seasonal Variation in Inversion Frequencies of Mexican *Drosophila pseudoobscura*.**  
**Thesis Advisor: I. R. Savage, deceased**

### FACULTY POSITIONS

**2002 – Dept of Genetics, Statistics, and Physics/Astronomy, UGA**  
**1997 – Dept of Genetics and Statistics, UGA**  
**1981 – Department of Statistics, Rutgers University**

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## AREAS OF RESEARCH

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Systems Biology  
Fungal Genomics  
Computational Genomics  
Molecular Evolutionary Genetics  
Theoretical Population Genetics  
Chromosomal Evolution

## GRANTS RECEIVED

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“REU site, Genomics and Computational biology”. DBI-2243206,03/07/2023-03/31/2026, \$598,691 (PI: Jonathan Arnold, Co-PI Sharife Mehrabi, Clark Atlanta University).

Collective behavior of cellular oscillators, NSF, 3/01/2021, 807,190 (PI: Jonathan Arnold, Co-PIs: H.-B. Schuttler, Leidong Mao, & Art Edison, Award NSF MCB-2041546

Systems analysis of the beneficial associations of sorghum and arbuscular mycorrhizal fungi studied with genetics, genomics, imaging, and microbiomics, DOE, 9/15/2020, 11,711,865 (PI: Jeff Bennetzen, Co-PIs: Jonathan Arnold, Annie Chung, Katrien Devos, and Nancy Johnson). Award DE-SC0021386. Project FP000201496

RAPID: finding virulence genes as therapeutic targets in Covid-19. DBI-2029595, 4/19/2020-4/18/2021, \$200,000 (PI: Jonathan Arnold, Co-PIs: Liang Liu and Justin Bahl)

“REU site, Genomics and Computational biology”. DBI-1946937,03/30/2020-03/30/2023, \$364,707 (PI: Jonathan Arnold, Co-PI David Logan, Clark Atlanta University).

“REU site, interdisciplinary experiences in nanotechnology and biomedicine. EEC-1950581, 04/01/2020-4/01/2023, \$404,071 (PI: Leidong Ma, Co-PI, Jonathan Arnold)

“Measuring and Modeling how Clocks in Single Cells Communicate: an interdisciplinary approach”. MCB-SSB/PHY-POLS-1713746, 08/01/2017-07/31/2020, \$838,000 (PI: Jonathan Arnold, Co-PI, H. Bernd Schuttler, Leidong Mao, and Art Edison). This is two separate awards combined administratively into one NSF award.

“EAGER: ALICE, MCB-1645325, “Adaptive Learning for Interdisciplinary Collaborative Environments”, 7/10/2016-7/09/2018, \$299,899 (PI: Juan Gutierrez, Co-PI: Jonathan Arnold, Pedro Portes

“REU site: Interdisciplinary research experiences in Nanotechnology and Biomedicine”, NSF EEC-1659525, 2017-2020, \$411,338 (PI: Leidong Mao, Co-PI: Jonathan Arnold)

“REU site: collaborative research: genomics and computational biology”, NSF DBI-1426834, 3/18/2014-3/17/2019, \$538,095 (PI: Jonathan Arnold, Co-PI: Richard B. Meagher, PI: David A. Logan)

“REU site: Interdisciplinary research experiences in Nanotechnology and Biomedicine”, NSF EEC-1359095, 2014-2017, \$359,998 (PI: Leidong Mao, Co-PI: Jonathan Arnold)

“REU site: genomics and computational biology”, NSF DBI-1062213, 2011-2014, \$379,000 (PI: Jonathan Arnold, Co-PI: Richard B. Meagher)

“Creativity Extension Award to DBI-0646315”, NSF DBI-01041715, 2010-2011, \$91,350 (PI: Jonathan Arnold, Co-PI: D.A. Logan).

"Workshop on Mathematical Biology and Numerical Analysis", NSF DMS-0906557, 2009-2010, \$30,000 (PI: T. Taha, Co-PIs: J. Arnold, J. Prestegard, & A Summers).

"Genomics and Computational Biology, an REU site", NSF DBI-0646315, 2007-2011, \$318,012+\$91,350 (PI: J. Arnold, Co-PIs: D.A. Logan, C. Teare Ketter).

"CAA: Identification of genetic networks in *Neurospora crassa*: a systems biology approach", NSF MCB-0542915, Mar 1, 2006- Feb 29, 2008, \$157,115, (PI: D. A. Logan and Co-PI: J. Arnold)

"Computing Life and the Kinetics of the Cell", NSF QSB-0425762, 2004-2008, \$499,994, (PI: J. Arnold and Co-PI: H.-B. Schuttler)

"A population based, multi-disciplinary study of Centenarians", NIH 5P01 AG017553-03, 2003-2009, \$159,720 (PI: L. Poon and Co-PIs: J. Arnold, R. Green, M. Jazwinski, M.A. Johnson, W. Markesbery, and W. Rogers)

"Genomics and Computational Biology, an REU site", NSF DBI-0243754, 2003-2007, \$337,000 (PI: J. Arnold, Co-PIs: D.A. Logan, C. Teare Ketter, & S. Datta).

"Novel statistical methods for generation of integrated genomics maps", USDA-2002-35300-12475, 2002-2007, \$280,000 (Co-PIs: S. Bhandarkar and J. Arnold)

"3<sup>rd</sup> International Symposium on Fungal Genomics and Computational Biology", Burroughs-Wellcome Fund 1001657, 2000-2001, \$5,000 (PI: J. Arnold)

"3<sup>rd</sup> International Symposium on Fungal Genomics and Computational Biology", DOE- 021463, 2000-2001, \$10,000 (PI: J. Arnold)

"*Pneumocystis* Genome Project", NIH 018275-01, 1999-2004, \$206,440, (subcontract from Dr. M. T. Cushion, University of Cincinnati).

"Parallel computing of physical maps for fungal genomes," USDA-9710389, 1997-2000, \$200,000 (Co-PIs, S. Bhandarkar and J. Arnold).

" *In vitro* reconstruction of fungal chromosomes", NSF, 1996-2000, \$467,917, 11/01/96-10/31/00, Microbial Genetics, MCB-9630910 (PI: J. Arnold)

" Robotics system for physical mapping fungal genomes", NSF, 1996-1998, \$107,150, 3/15/96-3/15/98, BIR-9512887 (PI: J. Arnold)

" Development of fungal-resistant peanut varieties", Georgia Research Alliance, 1996-1997, \$350,000, 7/01/96-6/30/97 (Co-PIs: L. Ljungdahl, J. Arnold, and P. Ozias-Akins).

" Parallel computing of physical maps", NSF, 1994-1995, \$50,000, 11/15/94 - 11/15/95, BIR-9422896.

" Novel data parallel algorithms and neural networks for computer vision, image processing, and genetics on the MasPar MP-2, MASPAR Corp., 1993-1994, \$420,656.

" *In vitro* reconstruction of fungal chromosomes", NIH grant, W. E. Timberlake and J. Arnold, 8/1/89-7/31/94, \$837,037.

" Instrumentation for a biological sequence/structure computational facility (BS/SCF), NSF grant, J. Arnold, 1989-1990, 2 years, \$188,090.

" Mitochondrial-nuclear interactions in hybrid zones", NSF grant, J. Arnold, 1988-1991, 3 years, \$130,000.

" Statistical problems in population genetics", NSF grant, J. Arnold, 1983-1987, 3 years, \$125,000.

" Statistical computing and genetic engineering", Army Research Office (ARO) training grant, J. Arnold and R. Bradley, 1983-1986, 3 years, \$60,000.

## AWARDS AND HONORS

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The UGA Excellence in undergraduate research mentoring award, 2002

National Science Foundation Creativity Extension Award for work on the biological clock, 2010.

AAAS Fellow, 2011

Franklin Diversity Leadership Development Award, 2013

## INSTRUCTION

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### Undergraduate

"Genomics and Society" 12-credit core cluster course for freshmen with new Genomics laboratory for undergraduates in partnership with Drs. Celeste Condit, William Barstow, Scott Kleiner, and Nelson Hilton in the Departments of Speech Communication, Botany, Philosophy, and English, respectively, 2001-2005

10-week NSF-funded summer institute for undergraduates from underrepresented groups in fungal genomics and computational biology in partnership with Clark Atlanta University, Fort Valley State University, and Georgia State University in partnership with Drs. David Logan, Richard B. Meagher, William Seffens, Susmita Datta and Catherine Teare-Ketter. 2000-2009

Introductory Genetics (60→350+ students each fall) for last 23 years. 1985-2008

Annual Academic Affairs Faculty Symposium, "Why do I need to learn this: Science and Math for the Non-Science Majors"

Genomics  
Genomic Analysis  
Nucleic Acids  
Bioinformatics

Molecular Evolution  
Theoretical Population  
Genetics  
Nucleic Acids  
Advanced Molecular  
Genetics  
Advanced Population  
Genetics

### Graduate

Advanced Molecular  
Genetics  
Genetic Data Analysis  
Statistical Genetics

### Past Courses Taught

Advanced Ecological  
Genetics  
Statistical Methods  
Statistical Theory  
Regression Methods  
Data Analysis  
Experimental Design

Advanced Population  
Genetics  
Bioethics  
C++

Statistical Computing with  
APL  
Bioinformatics  
Genetics  
Systems biology  
Mathematical Biology  
Introduction to  
Bioinformatics

## OTHER SERVICES

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### Departmental Committees

Head Search, Statistics, 2001 – 2003  
Bioinformatics faculty search, Statistics, 2000-2002  
Graduate Affairs Committee, 2000 – 2003  
IOB Graduate Affairs Committee – 2012-2019  
Undergraduate Affairs Committee, 1997 – 2018

Complex Traits Search, 2006

Systems Biology Search, 2006  
Computational Biology Search, 2008  
Genetics Department Executive Committee, 2009-2012  
Web page committee, 2010-present  
Awards Committee – 2011-present

#### **University Committees**

Executive Committee of Institute of Bioinformatics  
Institute of Bioinformatics Advisory Board  
University Wide Genome Committee,  
University Computing Advisory Committee  
University Computational Science Program Advisory Committee  
Carmon Fellowship Selection Committee  
3 recruiting committees in computational biology  
Georgia Advanced Computing Resource Center Advisory Committee 2011-2014  
College Promotion and Tenure – 2013-2014

#### **Other University Services**

Graduate Coordinator, Institute of Bioinformatics, University of Georgia, 2013-2019  
Director, NSF REU site in Fungal Genomics & Computational Biology, 2000-2019  
Director, Fungal Genome Resource, UGA, 1995-present.  
Founding Director, Biological Sequence/Structure Computational Facility (BS/SCF), UGA, 1988-1992.

#### **Federal Services**

NSF Computational Biology Panel, 1997-1999  
DOE Genome Panel, 1993-1994  
NIH Genomics Study Section (ad hoc), 2003  
NIH Genetics Study Section (ad hoc), 2004-2005  
NIH Genetic Variation and Evolution Study Section, charter member, 2005-2008  
NIH GCAT Study Section (ad hoc), 2010  
NSF Systems and Synthetic Biology Panel, 2018-2019

#### **Editorships**

Associate editor, *Frontiers in Genetics of Aging*, 2011-  
Editor, Special issue of *Genetics* 157 devoted to Fungal Genomics and Computational Biology, March, 2001  
Genome Editor, *Fungal Genetics & Biology*, 1997  
Associate Editor, *Evolution*, 1988-1991

#### **Journal volumes edited**

*Fungal Genetics and Biology*, vol. 21 (Genome Issue), 1997  
*Genetics*, vol. 157, March, 2001  
Xiong, M, Z Zhao, J Arnold, and F Yu (2010). Next-generation sequencing. *Journal of Biomedicine and Biotechnology*, Hindawi Publishing Corporation.

#### **REFEREED JOURNAL ARTICLES**

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JR Powell, WJ Tabachnick, and J Arnold (1980). Genetics and the origin of a vector population: *Aedes aegypti*, a case study. *Science* 201: 1385-1387.  
J Arnold, (1981). Statistics of natural populations, I: estimating an allele probability in cryptic fathers with a fixed number of offspring. *Biometrics* 37: 495-504.  
J Arnold, and DR Kankel (1981). Fate mapping multi-focus phenotypes. *Genetics* 99: 211-229.

- RG Harrison, and J Arnold (1982). A narrow hybrid zone between closely related cricket species. *Evolution* 36: 535-552.
- WW Anderson, and J Arnold (1983). Genotypic interactions in a model of density- regulated selection. *American Naturalist* 121: 649-655.
- J Arnold, and WW Anderson (1983). Density-regulated selection in a heterogeneous environment. *American Naturalist* 121: 656-668.
- JC Avise, JE Neigel, and J Arnold (1984). The demographics of mitochondrial lineage survivorship. *Journal of Molecular Evolution* 20: 99-105.
- J Arnold, and ML Morrison (1985). Statistics of natural populations. II. Estimating an allele probability in cryptic mothers with a fixed number of offspring. *Genetics* 109: 785-798.
- VK Eckenrode, J Arnold, and RB Meagher (1985). Comparison of the 18s rRNA with the sequence of other ribosomal small subunit rRNAs. *Journal of Molecular Evolution* 21:259-269.
- WW Anderson, J Arnold, SA Sammons, and DG Yardley (1986). Frequency-dependent viabilities of *Drosophila pseudoobscura* karyotypes. *Heredity* 56: 7-17.
- IF Goldman, J Arnold, and BC Carlton (1986). Selection for resistance to *Bacillus thuringiensis* subspecies *israelensis* in field and laboratory populations of the mosquito *Aedes aegypti*. *Journal of Invertebrate Pathology* 47: 317-324.
- J Arnold, VK Eckenrode, K Lemke, GJ Phillips, and SW Schaeffer. (1986). A comprehensive package for DNA sequence analysis in Fortran-IV for the PDP-11. *Nucleic Acids Research* 14: 239-254.
- MJ Sobel, J Arnold, and M Sobel (1986). Statistics of natural populations. III. Sequential sampling plans for the estimation of gene frequencies. *Biometrics* 42: 45-65.
- MA Asmussen, J Arnold, and JC Avise (1987). Statistics of natural populations. IV. Definition and properties of disequilibrium statistics for associations between nuclear and cytoplasmic genotypes. *Genetics* 115: 755-768.
- GJ Phillips, J Arnold, and R Ivarie (1987). Mono- through hexanucleotide composition of the *Escherichia coli* genome: a Markov chain analysis. *Nucleic Acids Research* 15: 2611-2626.
- GJ Phillips, J Arnold, and R Ivarie (1987). The effect of codon usage on the oligonucleotide composition of the *E. coli* genome and identification of over- and underrepresented sequences by Markov chain analysis. *Nucleic Acids Research* 15: 2627-2638.
- JC Avise, J Arnold, RM Ball, E Bermingham, T Lamb, JE Neigel, CA Reeb, and N. C. Saunders (1987). Intraspecific phylogeography: the mitochondrial DNA bridge between population genetics and systematics. *Annual Review of Ecology and Systematics* 18: 489-522.
- SG Wellso, DJ Howard, JL Adams, and J Arnold (1988). Electrophoretic monomorphism in six biotypes and two populations of the Hessian fly (*Diptera: cecidouryiidae*). *Annals of Entomological Society of America* 80 (1): 50-53.
- J Arnold, MA Asmussen, and JC Avise (1988). An epistatic mating system model can produce permanent cytonuclear disequilibria in a hybrid zone. *Proceedings of the National Academy of Sciences USA* 85: 1893-1896.
- JC Avise, RM Ball, and J Arnold (1988). Current versus historical population sizes in vertebrate species with high gene flow: a comparison based on mitochondrial DNA lineages and inbreeding theory for neutral mutations. *Molecular Biology and Evolution* 5: 331-344.
- J Arnold, AJ Cuticchia, DA Newsome, WW Jennings III, and R Ivarie (1988). Mono- through hexanucleotide composition of the sense strand of yeast DNA: a Markov chain analysis. *Nucleic Acids Research* 16: 7145-7157.
- PA Adams, A Falek, and J Arnold (1988). Huntington's Disease in Georgia: Age at onset. *American Journal of Human Genetics* 43: 695-704.
- RB Meagher, MD McLean, and J Arnold (1988). Recombination within a subclass of restriction fragment polymorphisms may help link classical and molecular genetics. *Genetics* 120: 809-818.
- MA Asmussen, J Arnold, and JC Avise (1989). The effects of assortative mating and migration on cytonuclear associations in hybrid zones". *Genetics* 122, 923-934.
- CJ Williams, WW Anderson, CJ Brown, and J Arnold (1989). An analysis of density-dependent viability selection, *Journal of the American Statistical Association* 84, September, 84, 662-668.



- CJ Williams, WW Anderson, and J Arnold (1990). Generalized linear modeling methods for selection component experiments. *Theoretical Population Biology* 35 (2): 389-423.
- JC Avise, WS Nelson, J Arnold, RK Koehn, GC Williams, and V Thorsteinsson (1990). The evolutionary genetic status of Icelandic eels. *Evolution* 44: 1254-1262.
- SE Surles, J Arnold, A Schnabel, JC Hamrick, and BC Bongarten (1990). Genetic relatedness in open-pollinated families of two leguminous tree species, *Robinia pseudoacacia* L. and *Gleditsia tricanthos* L., *Theoretical and Applied Genetics* 80: 49-56.
- MA Asmussen, and J Arnold (1991). The effects of admixture and population subdivision on cytonuclear disequilibria, *Theoretical Population Biology* 39: 273-300.
- Y-X Fu, and J Arnold (1991). On the association of RFLP's across species boundaries. *Proceedings of the National Academy of Sciences USA* 88: 3967-3971.
- H Brody, J Griffith, AJ Cuticchia, J Arnold, and WE Timberlake (1991). Chromosome-specific recombinant DNA libraries from the fungus *Aspergillus nidulans*. *Nucleic Acids Research* 19: 3105-3109.
- WW Anderson, J Arnold, DG Baldwin, AT Beckenbach, CJ Brown, SH Bryant, JA Coyne, LG Harshman, WB Heed, DE Jeffrey, LB Klaczko, BC Moore, JM Porter, JR Powell, T Prout, SW Schaeffer, JC Stephens, CE Taylor, ME Turner, GO Williams, JA Moore (1991). Four decades of inversion polymorphism in *Drosophila pseudoobscura*. *Proceedings of the National Academy of Sciences USA* 88: 10367-10371.
- JM Brewer, J Arnold, GG Beach, WL Ragland, and JK Wunderlich. (1991). Comparison of the amino acid sequences of tissue-specific parvalbumins from chicken muscle and thymus and possible evolutionary significance. *Biochemical and Biophysical Research Communications* 181: 226-231.
- Y-X Fu, and J Arnold (1992). Dynamics of cytonuclear disequilibria in finite populations and a comparison with a two-locus nuclear system. *Theoretical Population Biology* 41, No. 1, 1-25.
- Y-X Fu, and J Arnold (1992). A table of exact sample sizes for use with Fisher's exact test for 2 x 2 tables. *Biometrics* 48 (December) 48: 1103-1112.
- AJ Cuticchia, J Arnold, and WE Timberlake (1992). The use of simulated annealing in chromosome reconstruction experiments based on binary scoring of clones. *Genetics* 132: 591-601.
- AJ Cuticchia, J Arnold, H Brody, and WE Timberlake (1992) CMAP: Contig mapping and analysis package: a relational database for chromosome reconstruction, *CABIOS* 8: 467-474.
- Y-X Fu, WE Timberlake, and J Arnold (1992). On the design of genome mapping experiments using short synthetic oligonucleotides. *Biometrics* 48: 337-359.
- AJ Cuticchia, R Ivarie, and J Arnold (1992). The application of Markov chain analysis to oligonucleotide frequency prediction and physical mapping of *Drosophila melanogaster*. *Nucleic Acids Research* 20: 3651-3657.
- AJ Cuticchia, J Arnold, and WE Timberlake (1993). ODS: Ordering DNA sequences, a physical mapping algorithm based on simulated annealing. *CABIOS* 9, 2, 215-219.
- AJ Cuticchia, J Arnold, and WE Timberlake (1993). PCAP: Probe choice and analysis package: a set of programs to aid in choosing synthetic oligomers for contig mapping, *CABIOS* 9, 2, 201-203.
- ML Cellino, and J Arnold (1993). The effects of male sterility on cytonuclear disequilibria in hybrid zones. *Genetica* 88: 37-50.
- J Arnold. (1993). Cytonuclear disequilibria in hybrid zones. *Annual Review of Ecology and Systematics* 24: 521-554.
- SK Hollingshead, J Arnold, T Readdy, and DE Bessen (1994). Molecular evolution of a multi-gene family in group A streptococci, *Molecular Biology and Evolution* 11: 208-219.
- Y Wang, RA Prade, J Griffith, WE Timberlake, and J Arnold (1994). A fast random cost algorithm for physical mapping. *Proc. Natl. Acad. Sci. USA* 91: 11094-11098.
- Y Wang, RA Prade, J Griffith, WE Timberlake, and J. Arnold (1994). ODS\_BOOTSTRAP: Assessing the statistical reliability of physical maps by resampling. *CABIOS* 10: 625-634.
- M Xiong, HJ Chen, RA Prade, Y Wang, J Griffith, WE Timberlake, and J. Arnold (1996). On the consistency of a physical mapping algorithm to reconstruct a chromosome. *Genetics* 142: 267-284.
- R Dean and J Arnold (1996). Cytonuclear disequilibria in hybrid zones using RAPD markers. *Evolution* 50(4): 1702-1705.

- S Datta, Y-X Fu, and J Arnold (1996). Dynamics and equilibrium behavior of cytonuclear disequilibria under genetic drift, mutation, and migration. *Theoretical Population Biology* 50: 298-324.
- R Dean and J. Arnold (1996). Small sample properties for estimators of cytonuclear disequilibria. *Heredity* 77: 396-399.
- M Bhandarkar, S Chirravuri, and J Arnold (1996). Parallel computing of physical maps--a comparative study in SIMD and MIMD parallelism. *J. Computational Biology* 3: 503-528.
- S Datta and J Arnold (1996). Diagnostics and a statistical test of neutrality hypotheses using the dynamics of cytonuclear disequilibria, *Biometrics* 52: 1042-1054.
- SM Bhandarkar, S Chirravuri, and J Arnold (1996). PARODS - A study of parallel algorithms for ordering DNA sequences. *CABIOS* 12, No. 4, 269-280.
- Wollenberg, J Arnold, and JC Avise (1996). Recognizing the forest for the trees: testing temporal patterns of cladogenesis using a null model of stochastic diversification. *Molecular Biology and Evolution* 13: 833-849.
- S Datta, M Kiparsky, DM Rand, and J Arnold (1996). A statistical test of a neutral model using the dynamics of cytonuclear disequilibria. *Genetics* 144: 1985-1992.
- RA Prade, J Griffith, K Kochut, J Arnold, and WE Timberlake (1997). *In vitro* reconstruction of the *Aspergillus (=Emericella) nidulans* genome. *Proc. Natl. Acad. Sci. USA* 94: 14564-14569
- R Dean and J Arnold (1997). The effects of unidirectional incompatibility on cytonuclear disequilibria in a hybrid zone. *Genetica* 101: 215-223
- M Sanchez, J Arnold, and MA Asmussen (1997). Effects of vertical transmission rates on the survival, maintenance of genetic variability and association of viral parasite and host genotypes. *Gibier Faune Sauvage* 14: 477-492
- J Arnold and MT Cushion (1997). Constructing a physical map of the *Pneumocystis* genome, *J. Euk. Microbiol.* 44:8s
- MT Cushion, and J Arnold (1997). Proposal for a *Pneumocystis* Genome Project, *J. Euk. Microbiol* 44: 7s
- SM Bhandarkar, S Machaka, S Chirravuri, and J Arnold (1998). Parallel computing for chromosome reconstruction via ordering of DNA sequences. *Parallel Computing* 24: 1177-1204.
- S Datta and J Arnold (1998). Dynamics of cytonuclear disequilibria in subdivided populations. *J. Theor. Biol.* 192: 99-111
- KT Scribner, S Datta, J Arnold and JC Avise (1999). Empirical evaluation of cytonuclear models incorporating genetic drift and tests for neutrality of mtDNA variants: data from experimental *Gambusia* hybrid zones, *Genetica* 105: 101-108
- TJ Lott, BP Holloway, DA Logan, R Fundyga, and J Arnold (1999). Towards understanding the evolution of the human commensal yeast, *Candida albicans*. *Microbiology* 145: 1137-1143
- MS Sanchez, J Arnold, and MA Asmussen (2000). Symbiont survival and host-symbiont disequilibria under differential vertical transmission. *Genetics* 154: 1347-1365
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- Hoyer, LL, R Fundyga, JE Hecht, JC Kapetyn, FM Klis, and J Arnold. (2001). Characterization of ALS genes from non-albicans *Candida* and phylogenetic analysis of the ALS family, *Genetics* 157 (April issue), 1555-1567
- RD Hall., SM Bhandarkar, J. Arnold, and T. Jiang (2001). Physical mapping with automatic capture of hybridization data. *Bioinformatics* 17 (3): 205-213
- Zhang, Y, H Tian, E Kraemer, and J Arnold (2002). Visualization of protein interaction mapping using Java 3D. *Bioinformatics*, submitted
- Kraemer, E, J Wang, J Guo, S Hopkins, and J Arnold (2001). An analysis of gene-finding approaches for *Neurospora crassa*. *Bioinformatics* 17: 901-912
- Fang, X, JA Miller, and J Arnold (2002). J3DV: a Java-based 3D database visualization tool. *Software - Practice and Experience* 32: 443-463



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- Fundyga, R, TJ Lott, and J Arnold (2002). Population structure of *Candida albicans*, a member of the human flora, as determined by microsatellite loci, *Infection, Genetics, and Evolution* 2: 57-68.
- Kochut, KJ, J Arnold, A Sheth, J Miller, E Kraemer, B Arpinar, and J Cardoso. (2003). INTELLIGEN: a distributed workflow system for discovering protein-protein interactions. *Parallel and Distributed Databases* 13, 43-72
- Xu, Z, B Lance, C Vargas, B Arpinar, S Bhandarkar, E Kraemer, KJ Kochut, JA Miller, JR Wagner, MJ Weise, JK Wunderlich, J Stringer, G Smulian, MT Cushion, & J Arnold (2003). Mapping by sequencing the *Pneumocystis* genome using the ODS3 tool. *Genetics* 163: 1299-1313
- Cardoso, J, A Sheth, JA Miller, J Arnold, and KJ Kochut (2004). Quality of service for workflows and web service processes. *J. Web Semantics: Science, Services, and Agents on the World Wide Web* 1: 281-308
- Strobel, G. and J. Arnold (2004). Essential eukaryotic core. *Evolution* 58, No. 2, 441-446
- Lott, TJ, RE Fundyga, RJ Kuykendall, and J Arnold (2005). The human commensal yeast, *Candida albicans*, has an ancient origin. *Fungal Genetics and Biology* 42: 444-451
- Sanchez, MS., CJ Basten, AM Ferrenberg, MA Asmussen, and J Arnold (2006). Exact sample sizes needed to detect dependence in 2 x 3 tables. *Theoretical Population Biology* 69: 111-120
- Icenhour, CR, J Arnold, M Medvedovic, and MT Cushion (2006). Competitive coexistence of two *Pneumocystis* species, *Infection, Genetics, and Evolution* 6: 177-186
- Dai, J, A Davey, IC Siegler, J Arnold, and LW Poon (2006). GCSDb: an integrated database system for the Georgia Centenarian Study. *Bioinformatics* 1: 214-219
- Dai, J, L. Li, S. Kim, B. Kimball, M. Jazwinski, and J Arnold for the Georgia Centenarian Study (2007). Exact sample size needed to detect dependence in 2 x 2 x 2 tables. *Biometrics* 63: 1245-1253
- Tewari, S, SM Bhandarkar, and J Arnold (2007). Design and analysis of an efficient recursive linking algorithm for constructing likelihood based genetic maps for a large number of markers. *Journal of Bioinformatics and Computational Biology* 5 (No 2), 201-250
- Yu, Y, W Dong, C Altimus, X Tang, J Griffith, M Morello, L Dudek, J Arnold, and H-B Schuttler (2007). A genetic network for the clock of *Neurospora crassa*. *PNAS USA* 104: 2809-2814
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- Arnold, J, J Griffith, & ME Case 2023. Microevolution of the clock genetic network in *Neurospora crassa*, submitted.
- Huang, Y, J. Arnold, & H-B Schuttler 2023. Modeling of biological and chemical reaction networks: the super-ensemble approach, submitted
- Tewari, S, J Griffith, SM Bhandarkar, & J Arnold 2023. Likelihood-based integrated genetic and physical map of *Neurospora crassa*, submitted
- Wu, Lingyun, J. Arnold, & H.-B. Schuttler (2023). Collective synchronization of stochastic biological clocks, *Physical Review Letters*, submitted
- Torres, I., S. Zhang, M. Skaro, Z. Wang, Yue Wu, L. Stupp, T. Pendergast, N. Johnson, J. Arnold, A. Chung, K. Devos, J. Bennetzen, J. Townsend, & H.-B. Schuttler (2023). MINE: a new way to design genetics experiments for discovery. In preparation.
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## INVITED JOURNAL ARTICLES / CHAPTERS

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- Arnold, J (2001). Genetic Drift. *Encyclopedia of Genetics*, pp. 831-834, Academic Press, NY, NY
- Bennett, J and J Arnold (2001). Genomics of Fungi. *The Mycota VIII. Biology of the Fungal Cell*. Howard and Gow (eds). pp. 267-297 Springer-Verlag, NY, NY
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## CONVENTION PAPERS / BOOK CHAPTERS REFEREED AND PUBLISHED

- Arnold, J and DR Kankel (1982). Mapping contingency tables. In *Computer Science and Statistics: Proceedings of the 14th Symposium on the Interface*. Springer-Verlag, New York, pp. 140-149.
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- Tewari, S, J Arnold and SM Bhandarkar (2006) "Efficient Recursive Linking Algorithm for Computing the Likelihood of an Order of a Large Number of Genetic Markers" *Proc. of the IEEE LSS Computational Systems Bioinformatics Conference (CSB 2006)*, Aug. 14-18, 2006, Stanford University, Palo Alto, CA., P Markstein and Y. Xu (ed.s), Imperial College Press, London. Pp. 191-198
- Arnold, J, W Dong, J Griffith, D Choi, J Baldwin, L Hilton, K Kelps, J McGuire, R Morgan, M Smith, Q Wang, J Liu, J Reeves, DA Logan, ME Case, and H-B Schuttler. (2006). Systems Biology of the Biological Clock. *IEEE Proceedings of the First International Conference on Computational Systems Biology (ICCSB-2006)*, pp. 119-125.
- Xiong, M and J Arnold (2006). Do genetic networks obey Kirchhoff's and Ohm's Laws? *Proc. IASTED International Conf. on Comp. & Systems Biology*, Dallas, TX, November 13-14, 2006, pp. 13-19.
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- Deng, Z, S Arsenault, L Mao, & J Arnold 2016. Measuring synchronization of stochastic oscillators in Biology. *J. Physics Conference Series 750: 012001*, doi:10.1088/1742-6596/750/1/012001
- Judge, M, J Griffith, & J Arnold. 2017. Aging and the Biological Clock. In "Circadian Rhythms and Their Impact on Aging". Jazwinski, S M, Belancio, V P, & Hill, S M (ed.s). In "Healthy Aging and Longevity". Rattan, S. (ed.). Springer Science + Business Media B.V., Dordrecht, Netherlands. 978-3-319-64542-1. Ch. 10. Pp. 211-234
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- Judge, M., S. Zhang, Y. Wue, J. Glushka, J. Arnold, & A. Edison (2018). Developments in the detection of oscillating metabolites in *Neurospora crassa*. *59th Experimental Nuclear Magnetic Resonance Conference (ENC)*, Apr 29 – May 4, 2018. Orlando, FL.
- Cheong, J. H, X. Qiu, Y. Liu, J. Griffith, H-B Schuttler, J. Arnold, & L. Mao (2020). Microfluidic Chamber Device to Test Quorum Sensing Theory. *MicroTAS2020*. Oct 4-9, 2020, online.
- Cheong, J. H, X. Qiu, Y. Liu, J. Griffith, H-B Schuttler, J. Arnold, & L. Mao (2021). Measuring how clocks in single cells of *Neurospora crassa* communicate in microfluidic devices. *MicroTAS2021*. Oct 10-14, 2021, Palm Springs, CA 1/5/22, 12:18 PM RPPR - Preview Report <https://reporting.research.gov/rppr-web/rppr?execution=e1s2013/28>
- Qiu X, Cheong J, Liu Y, Schuttler H-B, Mao L, Arnold J. (2021) Quorum sensing in single cells of *Neurospora crassa*. 25th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS2021), Palm Springs, CA, USA, 10 Oct 2021 - 14 Oct 2021. 04 Oct 2021 (Proceedings of conference (published))

## INVITED SEMINARS AND SYMPOSIUMS (1993-PRESENT)

- Colloquium talk on "Towards a map of the human genome," Dept. of Statistics, UC Santa Barbara, April 8, 1993
- "*In vitro* reconstruction of *A. nidulans* chromosome IV," June 8-11, 1994, NIH Mycology Workshop, Flagstaff, AZ. Symposium.
- "*In vitro* reconstruction of fungal chromosomes," seminar speaker, Bristol-Meyer, Princeton, NJ, June 25, 1994.
- "*In vitro* reconstruction of fungal chromosomes," seminar speaker, National Science Foundation, Arlington, VA, Sept. 8, 1994.
- "*In vitro* reconstruction of fungal chromosomes," seminar speaker, Department of Energy, Germantown, MD, October 19, 1994.
- "*In vitro* reconstruction of fungal chromosomes and genomes," Fungal Genetics meeting, Asilomar, CA, March 21-26, 1995.
- "*In vitro* reconstruction of fungal genomes," Georgia Institute of Technology, May 23, 1995.

"*In vitro* reconstruction of fungal chromosomes," seminar speaker, School of Biological Sciences, Georgia Tech., Spring, 1995.

"*In vitro* reconstruction of fungal chromosomes," seminar speaker, Dept. of Biological Sciences, Clark Atlanta University, November, 1995.

"*In vitro* reconstruction of fungal chromosomes," symposium speaker, First Fungal Genome Workshop, Stillwater, OK, August 19, 1996.

"Fungal Genomics," symposium speaker, Plant Molecular Biology Retreat, December, 1996.

"Fungal Genomics", seminar, University of Cincinnati Medical Center, August, 1997.

"Fungal Genomics", Second International Symposium on Fungal Genomics, Athens, GA, March 26-27, 1998.

"Statistical Genomics", Sixth International Symposium/Statistics, Purdue, Lafayette, IN, June 21-23, 1998.

"*Neurospora crassa* physical mapping project", Gordon Conference on Cellular and Molecular Mycology, Holderness School, Plymouth, NH, July 19 – 24, 1998.

"Statistical Genomics", Part II, Fall Colloquia, Purdue, Lafayette, IN, Oct. 21-23, 1998.

"Genomics", Human Genetics Center, University of Texas at Houston, March 16- 18, 1999.

"Fungal Genomics", 20<sup>th</sup> Fungal Genetics Conference, Asilomar Conference, Pacific Grove, CA, March 23 – 25, 1999.

"Physical mapping of *Pneumocystis carinii*", Society of Protozoologists, Raleigh, NC May 26-29, 1999.

"Physical Mapping", Burroughs Wellcome Meeting following the American Society of Microbiology, Chicago, IL June 3 – 4, 1999.

"Fungal Genomics", International Botanical Congress, St. Louis, MI, August 1-7, 1999

" Microsatellite variation in *Candida albicans*", invited talk, General Society of Microbiology, University of Warwick, Warwick, England, April 13, 2000.

"*In vitro* reconstruction of fungal chromosomes", Clark Atlanta University, Spring 2000.

"Computing Life", Joint Statistical Meetings (JSM) 2001, Atlanta, GA, August 9, 2001

"Metabolomics", North Carolina State University, Raleigh, NC, Feb 19, 2002

"Fungal Genomics", Centers for Disease Control, Atlanta, GA, May 15, 2002

"Computing Life", Purdue University, April, 2003

"Computing Life", National Science Foundation Workshop on

"Computational Resources for Microbial Systems, Arlington, VA, October 27-29, 2003

"Computing Life", University of Minnesota, Bioinformatics: Building Bridges, April 16, 2004

"Genetic Networks", Dept. Biochemistry & Molecular Biology, Louisiana Health Science Center, January 13, 2006, rescheduled, New Orleans.

"Systems Biology of the Biological Clock", keynote address, First International Conference on Computational Systems Biology, July 20-23, 2006, Shanghai, China.

"Design of Case-Control studies of Centenarians", invited talk, International Conference on Centenarians, October 18, 2006, Sunchang, Korea

"Systems Biology of the Biological Clock", Yale Department of Ecology and Evolutionary Biology, November 14, 2007, New Haven, CT

"Biological clock and aging", 20<sup>th</sup> Anniversary Celebration of the Georgia Centenarian Study, August 12, 2008, Atlanta, GA

"Biological Clock and Aging, IAGG Meeting, July 8, 2009, Paris, France

"Systems Biology of the Clock", Yale Systems Biology Symposium, October 15, 2010, New Haven, CT

"Systems Biology of the Clock", seminar, Department of Organismal and Evolutionary Biology, Harvard University, March 21, 2012, Cambridge, MA

"Systems Biology of the Clock", seminar, Department of Bioinformatics and Biostatistics, University of Louisville, March 27, 2015, Louisville, KY

"Measuring synchronization of stochastic oscillators in biology", in *Recent Developments in Computer Simulation Studies in Condensed Matter Physics*. UGA. February 22-26, 2016, Center for Simulational Physics.

"ALICE: New approaches to undergraduate and graduate education in systems biology, March 12, 2016, Spelman College, NSF Quantitative Biology Workshop

"Are there clocks in single cells that synchronize?", Laboratory of Genetics, University of Wisconsin – Madison, January 25, 2017

"Are there clocks in single cells that synchronize?", Georgia Scientific Computing Symposium, University of Georgia, February 25, 2017

## RECOGNITION AND OUTSTANDING ACHIEVEMENTS

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Member of Sigma Xi  
Yale University Graduate Fellowship  
Yale Stanley Prize in Mathematics (undergraduate)

## PRE AND POSTDOCTORAL FELLOWS

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### Current graduate students

Molina, Alexis, "Transcriptional bursting and its role in phase synchronization of the clock"  
Zhang, S., (co-advised with Leidong Mao) "Clock Filaments and their Synchronization in *Neurospora crassa*"  
Hossain, Z. (co-advised with Art Edison). "Quorum sensing in the clock in *Neurospora crassa*".  
Asher, Olivia (co-advised with Jeff Bennetzen), "Competition between arbuscular mycorrhizal fungi"  
Bouffier-Landrum, Amanda, "MINE for Mapping Populations of Sorghum"  
Zhang, Shufan, "Mapping Arbuscular Mycorrhizal Fungi traits to the Sorghum genome"  
Torres, Isaac, "MINE for structural equation models"  
Scrusse, Ashley, PhD candidate, IOB, "Network Motifs"  
Qiu, Xiao, PhD candidate, Institute of Bioinformatics, "Numerical Simulation of Communication and synchronization of Circadian Rhythms in *Neurospora crassa*", postdoc, Berkeley Lights

### Current undergraduates

Lincoln, Brooke, (2021-). "Living Mulch"  
Felt, Camryn (2021-). "N and P ratios and AMF colonization of sorghum roots".  
Gay, Skylar (2021-). "Coalescent Theory and the 2020 Pandemic"  
Prestel, Anna (2022-). "High throughput phenotyping of AMF in sorghum roots and their GWAS"  
Lantz, William (2022-). "High throughput phenotyping of AMF in sorghum and their GWAS"  
Meinster, Andrew (2022-). "High throughput phenotyping of AMF in sorghum"  
Prestel, Anna (2022-). "High throughput imaging of AMF in sorghum"  
Lantz, William (2022-). "High throughput imaging of AMF in sorghum"  
Chege, Wambui (2022-). "High throughput imaging of AMF in sorghum"  
Wilson, Isabella (2022-). "High throughput imaging of AMF in sorghum"

### Current postdoctoral fellows

Cheong, Jia Hwei, postdoctoral fellow, PhD, UGA Chemistry Department, "Unraveling how clocks in single cells of *Neurospora crassa* communicate and synchronize in Microfluidic Devices and co-culturing sorghum and AMF".  
Mohanty, Bijoy, Senior Research Scientist, "Transcriptional bursting in the clock of *Neurospora crassa*".

### Past postdoctoral fellows

Weaver, Geoffrey, (2020-2021) "High-throughput imaging of arbuscular mycorrhizal fungi in sorghum"  
Dong, Wubei (2007), Genetics, UGA, "Systems biology of *Neurospora*" –Professor, Huazhong Agricultural University, Wuhan, China  
Dai, Jianliang (2007). "Sample size problem for 2 x 2 x 2 table" – now Biostatistician/Bioinformatician, Department of Medicine, Tulane Center of Aging, Tulane University, New Orleans, LA

Arpinar, B (2001). "Adaptive workflows for protein-protein interaction mapping" – UGA, now associate professor, Computer Science Department, University of Georgia

Hall, D. (2000), "Fungal Genome Database", Assistant Computational Biologist – UGA, now Head of Computational Biology at Rho, Inc., Chapel Hill, NC

Kelkar, H. (1999), "*In vitro* reconstruction of the *Neurospora crassa* and *Aspergillus flavus* genomes.", now Director of Scientific Computing, Bioinformatics Center, University of North Carolina – Chapel Hill

Prade, R., (1995). "Physical mapping of *Aspergillus nidulans*". Associate Professor, Dept. Microbiology and Molecular Genetics, Oklahoma State University, Stillwater, OK.

Wang, Y., (1994). "Neural Networks for physical mapping". Bioinformatics Department, Merck , Inc.

Fu, Y.-X. (1990). "Cytonuclear disequilibria in finite populations". Professor, University of Texas at Houston Human Genetics Center, University of Texas at Houston, Houston, TX.

### Past students

Wu, Yue, PhD (2022), Institute of Bioinformatics, "Knowledge Discovery from *in vivo* Metabolic Dynamics", postdoctoral fellow, Stanford University (Michael Snyder)

Skaro, Michael, PhD (2022), Institute of Bioinformatics, "Applications of machine learning in omics and computer vision", computational biologist, Glaxo-Smith-Kline

Stupp, Lauren (2021-2022). "Imaging of arbuscular mycorrhizal fungi in sorghum roots". Genetic counsellor, Winship Cancer Center, Emory University.

Krach, Emily, PhD (2021), Genetics Department, "Conidio-forms: Identifying and characterizing natural morphological variation in *Neurospora crassa* conidiophores", postdoctoral fellow, NIH

Judge, Michael, PhD (joint with Art Edison) (2021), Genetics Department, "Dynamics of Metabolism in *Neurospora crassa*", Postdoctoral Fellow, Imperial College

Montenegro, Tito Pena, PhD (joint with Mandy Joye) (2021), Institute of Bioinformatics, "Tracking the response of hydrocarbon-degrading microorganisms to environmental forcings"

Lim-Tom, Tatiana BS (2017-2020). "conidiophore development in *Neurospora crassa*."

Wu, Lingyun, PhD (2020), Physics and Astronomy, "Collective Behavior of Stochastic Biological Clocks". Research scientist, Google, San Diego.

Caranica, Cristian PhD (2020) Stochastic Models for Genetic Networks, Department of Statistics, postdoctoral fellow, Jackson Laboratories, Bar Harbour, ME

Hull, Brooke, BS (2018). Genomic editing of *Neurospora crassa* as a tool for studying circadian oscillator synchronization – Now, graduate student at Princeton University

Deng, Zhaojie, PhD (2017), College of Engineering, "Single-cell analysis on the biological clock using microfluidic droplets", College of Engineering. Research Scientist, Department of Genomic Sciences. University of Washington, Seattle, WA

Robinson, Sarah BS (2017). Propagation of errors in single cell oscillatory time series to the periodogram. – PhD in Statistics at Rice and now Data Scientist II, Microsoft

Al-Omari, Ahmad, Ph.D (2015), Institute of Bioinformatics, "Discovering a regulatory network topology by Markov Chain Monte-Carlo on GPGPUs with special reference to the biological clock of *Neurospora crassa*", associate professor, Yarmouk University, Jordan

Cunningham, Sarah, BS (2016). The genetic network of circadian rhythms in *Neurospora crassa*. – Now, graduate student at Duke University

Manzourolajdad, Amirhossein, Ph.D. (2014), Institute of Bioinformatics, UGA: *Ab initio* Identification of regulatory RNAs using information-theoretic uncertainty. Research fellow, NLM, temporary assistant professor, Indiana University - Indianapolis

Brunson, Patrick (2014). Sphingolipid synthesis and the aging biological clock in *Neurospora crassa*. Now graduate student at UC-San Diego.

Bouffier, Amanda M., M.S. (2013), Institute of Bioinformatics, UGA: A MINE alternative to D-optimal designs for the linear model. unknown

Arte, Ankit, M.S (2011), Computer Science, UGA: HiDEW: High-Speed Determination of epigenetic code rendered through a Web Application. Web developer, University of Georgia

Tang, Xiaojia, Ph.D. (2009), Physics and Astronomy, UGA: The Computational Systems Biology for the Biological Clock of *Neurospora crassa*. Postdoctoral fellow, Mayo Clinic with Dr. Krishna Kalari



Tewari, Susanta, Ph.D. (2008), Statistics, UGA: Construction of high-resolution likelihood-based integrated genetic and physical map of *Neurospora crassa*. Assistant Professor, Ahmedabad University, Calcutta, India.

Koch, Allison, B.S. (2007), Genetics, UGA: Systems Biology of the *qa* gene cluster in *Neurospora crassa*, - Now, Regulatory Affairs manager at Astra/Zeneca

Morello, M., B.S. (2005), Genetics, UGA: Half-life of the *wc-1* mRNA in *Neurospora crassa*". Medical College of Georgia physician training program.

Altimus, Cara, B.S. (2003), Honors, Genetics, UGA "What makes a Biological clock in tick?" Honors Thesis. Johns Hopkins University postdoctoral fellow

Whitworth, C., B.S. (2003). Honors, Genetics, UGA, "Integrated genomic and proteomic analysis of the *qa* gene cluster of *Neurospora crassa*". Associate Director, Bloomington Drosophila Stock Center, Bloomington, Indiana.

Xu, Zheng, M.S. (2001), Computer Science, UGA, "Mapping by Sequencing using ODS". University of Chicago Business School

Fundyga, R., Ph.D. (2001), Genetics, UGA, "The population genetics of pathogenic fungi: empirical and theoretical studies. ASM postdoctoral fellow", CDC, now veterinarian, Plymouth, MASS

Hall, D., Ph.D. (1999), Genetics, UGA, "New computational tools for genome mapping". Rho, principal investigator.

Sanchez, M., Ph.D. (1999), Genetics, UGA, "Coevolutionary models of host/pathogen systems." Postdoctoral fellow, Dr. Alan Hastings, University of California - Davis

Shete, S., Ph.D. (1998), Statistics, UGA, "Methods for physical mapping." Professor. University of Texas M.D. Anderson Cancer Center, Houston, Texas.

Wollenberg, K., Ph.D. (1997), Genetics, UGA, "Testing for nonrandomness in phylogenetic trees." Assistant Professor, Tufts University, now NIH

Dean, R., Ph.D. (1996), Genetics, UGA, "Three models for cytonuclear disequilibria". Statistical Geneticist. National Plant Germplasm System, Griffin, GA.

Datta, S., Ph.D. (1995), Statistics, UGA, "Dynamics of cytonuclear disequilibria and related statistical tests for the neutrality of mitochondrial DNA markers for hybrid zone data". Professor, Department of Biostatistics, University of Florida, Gainesville, FL.

Xiong, M., Ph.D. (1993), Statistics, UGA, co-sponsored with H.J. Chen, "Mathematical theory of neural learning and its applications to statistics and molecular biology". Professor, University of Texas at Houston Human Genetics Center, University of Texas at Houston, Houston, TX.

Cellino, M. J., M. S. (1992), Genetics, UGA, "The effects of cytoplasmic male sterility on Cytonuclear Disequilibria in hybrid zones". Networking Professional, NetCom, Inc, Washington, D.C.

Cuticchia, A. J., Ph.D. (1992). Genetics, UGA. "Computational advances in the physical mapping of small eukaryotic genomes". instructor, North Carolina Central University and AJC Legal Services.

Williams, C. J., Ph.D. (1988). Statistics, UGA. "Statistical problems in selection component analysis". full professor, Department of Mathematics & Statistics, University of Idaho.

Phillips, G. J., Ph.D. (1987). Genetics, UGA, Co-sponsored with S. R. Kushner. "Structural and functional characterization of the Exonuclease I (*sbcB*) gene and gene product from *Escherichia coli* and a Markov chain analysis of DNA sequences". Professor, Department of Microbiology, Iowa State University, Ames, Iowa.

Adams, P. B., Ph.D. (1986). Behavior Genetics, Georgia State University, Co-sponsored with A. Falek. "Statistical analysis of age at onset in Huntington's disease". Assistant professor, Department of Genetic Epidemiology, Columbia University Psychiatry and New York Psychiatric Institute.

Sammons, S. A., M.S.T. (1987). Genetics, UGA, "Molecular evolution of homeo boxes". Research Scientist, Bioinformatics, CDC, Atlanta, GA

Lemke, K. M.S. (1985). Statistics, UGA, "Dispersal models for *Drosophila*". Biostatistician, Johns Hopkins University Bloomberg School of Public Health, Center for Health Services and Outcomes Research.

Porter, J., M.A.M.S. (1985). Computer Science, UGA, "Inversion frequency mapping in *Drosophila pseudoobscura*". Ph.D. candidate, Botany Department, Duke University.

Goldman, I. F., M.S. (1985). Entomology, UGA, "Selection for resistance to *Bacillus thuringiensis* variety *israelensis* in field and laboratory populations of the mosquito *Aedes aegypti*". Molecular Entomologist, Center for Disease Control (CDC, Atlanta).



## REVIEWER

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ad hoc reviewer, NIA grant in longevity  
ad hoc reviewer, NIAID grants in fungal genomics  
ad hoc reviewer, NIH Nonmammalian models of Biomedical Research  
ad hoc reviewer, NIH GCAT study section  
USDA grant proposals  
NSF grant proposals  
United Kingdom grant proposals  
*ACS Synthetic Biology*  
*American Journal of Human Genetics*  
*American Naturalist*  
*Applied Mathematics and Computation*  
*Bioinformatics*  
*Bioinformation*  
*Biometrics*  
*Biophysical Journal*  
*BMC Bioinformatics*  
*BMC Genomics*  
*Bulletin of Mathematical Biology*  
CABIOS  
Current Gerontology and Geriatrics Research  
Database  
Evolution  
Evolutionary Theory  
FEBS Letters  
*Frontiers Cell and Developmental Biology*  
*Frontiers in Genetics*  
*Frontiers Molecular Biosciences*  
*Fungal Biology Reviews*  
*Fungal Genetics & Biology*  
*Genetica*  
*Genetics*  
*Genetics Research*  
IEEE Access  
*IET Systems Biology*  
*Journal of Applied Gerontology*  
*Journal of Forest Science*  
*Journal of Gerontology*  
*Journal of Invertebrate Pathology*  
*Journal of Molecular Evolution*  
*Journal of Royal Society Series B*  
*Journal of Theoretical Biology*  
*Mathematical Biosciences*  
*Molecular Biology & Evolution*  
*Nature*  
*Nature Communications*  
*Nature Metabolism*  
*Nature Scientific Reports*  
*Nucleic Acids Research*  
*PLoS Computational Biology*  
*PLoS ONE*  
*Proceedings of the National Academy of Sciences USA*  
*Science*  
*SIAM Journal of Applied Mathematics*  
*Statistical Methods in Medical Research*

## REFERENCES

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### **Joan Bennett**

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Rutgers University  
New Brunswick, NJ 08901  
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