

Stefano Allesina

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Appointments

Chair

ECOLOGY & EVOLUTION

University of Chicago

2021–

External faculty

NORTHWESTERN INSTITUTE ON COMPLEX SYSTEMS

Northwestern University

2016–

Professor

ECOLOGY & EVOLUTION

University of Chicago

2014–

Senior Fellow

COMPUTATION INSTITUTE

University of Chicago

2014–2018

Assistant Professor

ECOLOGY & EVOLUTION AND COMPUTATION INSTITUTE

University of Chicago

2009–2014

Postdoctoral Associate

NCEAS

U. California, Santa Barbara

2007–2009

Postdoctoral Fellow

MERCEDES PASCUAL LAB

University of Michigan

2005–2007

Postdoctoral Fellow

SCOTT PEACOR LAB

Michigan State U. and NOAA GLERL

2004–2005

Education

Ph.D.

ECOLOGY

• Advisor: Antonio Bodini

Università degli Studi di Parma, Italy

2002–2005

Laurea

ENVIRONMENTAL SCIENCES

• Advisors: Alessandro Zaccagnini and Antonio Bodini

Università degli Studi di Parma, Italy

1995–2001

Published articles

1. Serván, C. A., Capitán, J. A., Miller, Z. R., & Allesina, S. (2025). Effects of phylogeny on coexistence in model communities. The American Naturalist, 205(2), E34–E48.
2. Serván, C. A., Capitán, J. A., Miller, Z. R., & Allesina, S. (2024). Effects of phylogeny on coexistence in model communities. The American Naturalist, (accepted).
3. Lemos-Costa, P., Miller, Z. R., & Allesina, S. (2024). Phylogeny structures species' interactions in experimental ecological communities. Ecology Letters, e14490.
4. Miller, Z. R., Clenet, M., Della Libera, K., Massol, F., & Allesina, S. (2024). Coexistence of many species under a random competition–colonization trade-off. Proceedings of the National Academy of Sciences, 121(5), e2314215121.
5. Skwara, A., Lemos-Costa, P., Miller, Z. R., & Allesina, S. (2023). Modelling ecological communities when composition is manipulated experimentally. Methods in Ecology and Evolution, 14(2), 696–707.
6. Medeiros, L. P., Allesina, S., Dakos, V., Sugihara, G., & Saavedra, S. (2023). Ranking species based on sensitivity to perturbations under non-equilibrium community dynamics. Ecology Letters, 26(1), 170–183.
7. Miller, Z. R., & Allesina, S. (2023). Habitat heterogeneity, environmental feedbacks, and species coexistence across timescales. The American Naturalist, 202(2), E53–E64.
8. Miller, Z. R., Lechon-Alonso, P., & Allesina, S. (2022). No robust multispecies coexistence in a canonical model of plant-soil feedbacks. Ecology Letters, 25(7), 1690–1698.
9. Castro, F. de, Adl, S. M., Allesina, S., Bardgett, R. D., Bolger, T., Dalzell, J. J., Emmerson, M., Fleming, T., Garlaschelli, D., Grilli, J., et al. (2021). Local stability properties of complex, species-rich soil food webs with functional block structure. Ecology and Evolution, 11(22), 16070–16081.
10. Miller, Z. R., & Allesina, S. (2021). Metapopulations with habitat modification. Proceedings of the National Academy of Sciences, 118(49).

11. Serván, C.A., & Allesina, S. (2021). Tractable models of ecological assembly. *Ecology Letters*, 24(5), 1029–1037.
12. Maynard, D.S., Miller, Z.R., & Allesina, S. (2020). Predicting coexistence in experimental ecological communities. *Nature Ecology & Evolution*, 4(1), 91–100.
13. Costa, A., González, A. M. M., Guizien, K., Doglioli, A. M., Gómez, J. M., Petrenko, A. A., & Allesina, S. (2019). Ecological networks: Pursuing the shortest path, however narrow and crooked. *Scientific Reports*, 9(1), 1–13.
14. Jovic, K., Grilli, J., Sterken, M. G., Snoek, B. L., Riksen, J. A., Allesina, S., & Kammenga, J. E. (2019). Transcriptome resilience predicts thermotolerance in *Caenorhabditis elegans*. *BMC Biology*, 17(1), 102.
15. Maynard, D.S., Wootton, J. T., Serván, C.A., & Allesina, S. (2019). Reconciling empirical interactions and species coexistence. *Ecology Letters*, 22, 1028–1037.
16. Maynard, D.S., Serván, C.A., Capitán, J. A., & Allesina, S. (2019). Phenotypic variability promotes diversity and stability in competitive communities. *Ecology Letters*, 22(11), 1776–1786.
17. Michalska-Smith, M.J., & Allesina, S. (2019). Telling ecological networks apart by their structure: A computational challenge. *PLoS Computational Biology*, 15(6), e1007076.
18. Chen, Y., Shen, Y., Lin, P., Tong, D., Zhao, Y., Allesina, S., Shen, X., & Wu, C.-I. (2019). Gene regulatory network stabilized by pervasive weak repressions: microRNA functions revealed by the may–wigner theory. *National Science Review*, 6(6), 1176–1188.
19. Gibbs, T., Grilli, J., & Allesina, S. (2018). Effect of population abundances on the stability of large random ecosystems. *Physical Review E*, 98(2).
20. Maynard, D.S., Serván, C.A., & Allesina, S. (2018). Network spandrels reflect ecological assembly. *Ecology Letters*, 21(3), 324–334.
21. Michalska-Smith, M.J., Sander, E.L., Pascual, M., & Allesina, S. (2018). Understanding the role of parasites in food webs using the group model. *Journal of Animal Ecology*, 87(3), 790–800.
22. Serván, C.A., Capitán, J. A., Grilli, J., Morrison, K. E., & Allesina, S. (2018). Coexistence of many species in random ecosystems. *Nature Ecology & Evolution*, 2(8), 1237.
23. Barabás, G., Michalska-Smith, M.J., & Allesina, S. (2017). Self-regulation and the stability of large ecological networks. *Nature Ecology & Evolution*, 1(12), 1870.
24. Grilli, J., & Allesina, S. (2017). Last name analysis of mobility, gender imbalance, and nepotism across academic systems. *Proceedings of the National Academy of Sciences of the United States of America*, 114, 7600–7605.
25. Grilli, J., Barabás, G., Michalska-Smith, M.J., & Allesina, S. (2017). Higher-order interactions stabilize dynamics in competitive network models. *Nature*, 548, 210–213.
26. Grilli, J., Adorisio, M., Suweis, S., Barabás, G., Banavar, J. R., Allesina, S., & Maritan, A. (2017). Feasibility and coexistence of large ecological communities. *Nature Communications*, 8, 14389.
27. Levine, J. M., Bascompte, J., Adler, P., & Allesina, S. (2017). Beyond pairwise coexistence: Biodiversity maintenance in complex ecological communities. *Nature*, 546, 3376–3386.
28. Jovic, K., Sterken, M. G., Grilli, J., Bevers, R. P. J., Rodriguez, M., Riksen, J. A. G., Allesina, S., Kammenga, J. E., & Snoek, L. B. (2017). Temporal dynamics of gene expression in heat-stressed *caenorhabditis elegans*. *PLoS ONE*, 12(12).
29. Dee, L. E., Allesina, S., Bonn, A., Eklöf, A., Gaines, S. D., Hines, J., Jacob, U., McDonald-Madden, E., Possingham, H., Schröter, M., et al. (2017). Operationalizing network theory for ecosystem service assessments. *Trends in Ecology & Evolution*, 32, 118–130.
30. Michalska-Smith, M.J., & Allesina, S. (2017). And, not Or: Quality, quantity in scientific publishing. *PLoS One*, 12(6), e0178074.
31. Sander, E.L., Wootton, J. T., & Allesina, S. (2017). Ecological network inference from long-term presence-absence data. *Scientific Reports*, 7(1), 7154.
32. Barabás, G., Smith, M.J., & Allesina, S. (2016). The effect of intra- and interspecific competition on coexistence in multispecies communities. *American Naturalist*, 188, E1–E12.
33. Masco, C., Allesina, S., Mennill, D. J., & Pruett-Jones, S. (2016). Song overlapping: Distinguishing between intention and chance. *Bioacoustics*, 25, 29–40.
34. Grilli, J., Rogers, T., & Allesina, S. (2016). Modularity and stability in ecological communities. *Nature Communications*, 7, 12031+.
35. McCoy, S. J., Pfister, C. A., & Allesina, S. (2016). Ocean acidification affects competition for space: Projections of community structure using cellular automata. *Proceedings of the Royal Society B: Biological Sciences*, 283, 20152561.
36. Allesina, S., Grilli, J., Barabás, G., Tang, S., Aljadeff, J., & Maritan, A. (2015). Predicting the stability of large structured food webs. *Nature Communications*, 6, 7842.
37. Allesina, S., & Tang, S. (2015). The stability-complexity relationship at age 40: A random matrix perspective. *Population Ecology*, 57(1), 63–75.

38. Barabás, G., & Allesina, S. (2015). Predicting global community properties from uncertain estimates of interaction strengths. *Journal of the Royal Society Interface*, *12*, 20150218.
39. Grilli, J., Barabás, G., & Allesina, S. (2015). Metapopulation persistence in random fragmented landscapes. *PLoS Computational Biology*, *11*, e1004251.
40. Borrelli, J. J., Allesina, S., Amarasekare, P., Arditi, R., Chase, I., Damuth, J., Ginzburg, L., Holt, R. D., Logofet, D. O., Novak, M., Rohr, R. P., Rossberg, A. G., Spencer, M., & Tran, J. K. (2015). Selection on stability across ecological scales. *Trends in Ecology & Evolution*, *30*, 417–425.
41. Suweis, S., Grilli, J., Banavar, J., Allesina, S., & Maritan, A. (2015). Effect of localization on the stability of mutualistic ecological networks. *Nature Communications*, *6*, 10179+.
42. Sander, S., Wootton, J. T., & Allesina, S. (2015). What can interaction webs tell us about species roles? *PLoS Computational Biology*, *11*, e10043330.
43. Smith, M.J., Sander, S., Barabás, G., & Allesina, S. (2015). Stability and feedback levels in food web models. *Ecology Letters*, *18*(6), 593–595.
44. Weinberger, C.J., Evans, J. A., & Allesina, S. (2015). Ten simple (empirical) rules for writing science. *PLoS Computational Biology*, *11*, e1004205.
45. Wolkovich, E. M., Allesina, S., Cottingham, K. L., Moore, J. C., Sandin, S. A., & Mazancourt, C. de. (2014). Linking the green and brown worlds: The prevalence and effect of multi-channel feeding in food webs. *Ecology*, *95*(12), 3376–3386.
46. Smith, M.J., Weinberger, C., Bruna, E., & Allesina, S. (2014). The Scientific Impact of nations: Journal Placement and Citation Performance. *PLoS ONE*, *9*(10), e109195.
47. Staniczenko, P.P.A., Smith, M.J., & Allesina, S. (2014). Selecting food web models using normalised maximum likelihood. *Methods in Ecology and Evolution*, *5*(6), 551–562.
48. Tang, S., & Allesina, S. (2014). Reactivity and stability of large ecosystems. *Frontiers in Ecology and Evolution*, *2*, art no. 21.
49. Tang, S., Pawar, S., & Allesina, S. (2014). Correlation between interaction strengths drives stability in large ecological networks. *Ecology Letters*, *17*, 1094–1100.
50. Lortie, C. J., Allesina, S., Aarssen, L., Grod, O., & Budden, A. E. (2013). With great power comes great responsibility: The importance of rejection, power, and editors in the practice of scientific publishing. *PLoS One*, *8*(12), e85382.
51. Eklöf, A., Tang, S., & Allesina, S. (2013). Secondary extinctions in food webs: A Bayesian network approach. *Methods in Ecology and Evolution*, *4*(8), 760–770.
52. Eklöf, A., Jacob, U., Kopp, J.C., Bosch, J., Castro-Urgal, R., Chacoff, N. P., Dalsgaard, B., Sassi, C. de, Galetti, M., Guimãres Jr., P. R., Lomáscolo, S. B., Martín González, A. M., Pizo, M. A., Rader, R., Rodrigo, A., Tylianakis, J. M., Vázquez, D. P., & Allesina, S. (2013). The dimensionality of ecological networks. *Ecology Letters*, *16*(5), 577–583.
53. Parker, J. N., Lortie, C., & Allesina, S. (2013). Characterizing a scientific elite (b): Publication and citation patterns of the most highly cited scientists in environmental science and ecology. *Scientometrics*, *94*(2), 469–480.
54. Staniczenko, P.P.A., Kopp, J.C., & Allesina, S. (2013). The ghost of nestedness in ecological networks. *Nature Communications*, *4*(4), 1391.
55. Bodini, A., Bondavalli, C., & Allesina, S. (2012). Cities as ecosystems: Growth, development and implications for sustainability. *Ecological Modelling*, *245*, 185–198.
56. Bodini, A., Bondavalli, C., & Allesina, S. (2012). Cities as ecosystems: Functional similarities and the quest for sustainability. *Developments in Environmental Modelling*, *25*, 297–318.
57. Martín-González, A. M., Allesina, S., Rodrigo, A., & Bosch, J. (2012). Drivers of compartmentalization in a Mediterranean pollination network. *Oikos*, *121*, 2001–2013.
58. Allesina, S. (2012). Ecology: The more the merrier – News & Views. *Nature*, *487*, 175–176.
59. Allesina, S. (2012). Modeling peer review: An agent-based approach. *Ideas in Ecology and Evolution*, *5*, 27–35.
60. Allesina, S., & Tang, S. (2012). Stability criteria for complex ecosystems. *Nature*, *483*, 205–208.
61. Lortie, C. J., Aarssen, L., Parker, J. P., & Allesina, S. (2012). Good news for the people who love bad news: An analysis of the funding of the top 1% most highly cited ecologists. *Oikos*, *121*, 1005–1008.
62. Melián, C. J., Alonso, D., Allesina, S., Condit, R. S., & Etienne, R. S. (2012). Does sex speed up evolutionary rate and increase biodiversity? *PLoS Computational Biology*, *8*(3), e1002414.
63. Acuna, D. E., Allesina, S., & Kording, K. P. (2012). Future impact: Predicting scientific success. *Nature*, *489*, 201–202.
64. Eklöf, A., Helmus, M., Moore, M., & Allesina, S. (2012). Relevance of evolutionary history for food web structure. *Proceedings of the Royal Society B: Biological Sciences*, *279*(1733), 1588–1596.
65. Allesina, S. (2011). Predicting trophic relations in ecological networks: A test of the Allometric Diet Breadth Model. *Journal of Theoretical Biology*, *279*(1), 161–168.

66. Allesina, S. (2011). Measuring nepotism through shared last names: The case of Italian academia. PLoS ONE, 6(8), e21160.
67. Allesina, S., & Levine, J. M. (2011). Reply to Ferrarini: Strengths and weaknesses of simple competition models. Proceedings of the National Academy of Sciences of the United States of America, 108(31), E346.
68. Allesina, S., & Levine, J. M. (2011). A competitive network theory of species diversity. Proceedings of the National Academy of Sciences of the United States of America, 108(14), 5638–5642.
69. Baskerville, E. B., Dobson, A. P., Bedford, T., Allesina, S., Anderson, T. M., & Pascual, M. (2011). Spatial guilds in the Serengeti food web revealed by a Bayesian group model. PLoS Computational Biology, 7(12), e1002321.
70. Rojas-Echenique, J., & Allesina, S. (2011). Interaction rules affect species coexistence in intransitive networks. Ecology, 92(5), 1174–1180.
71. Zook, A.E., Eklöf, A., Jacob, U., & Allesina, S. (2011). Food webs: Ordering species according to body size yields high degree of intervality. Journal of Theoretical Biology, 271(1), 106–113.
72. Allesina, S., Azzi, A., Battini, D., & Regattieri, A. (2010). Performance measurement in supply chains: New network analysis and entropic indexes. International Journal of Production Research, 48(8), 2297–2321.
73. Melián, C. J., Alonso, D., Vázquez, D. P., Regetz, J., & Allesina, S. (2010). Frequency-dependent selection predicts patterns of radiations and biodiversity. PLoS Computational Biology, 6(8), e1000892.
74. Parker, J. N., Lortie, C., & Allesina, S. (2010). Characterizing a scientific elite: The social characteristics of the most highly cited scientists in environmental science and ecology. Scientometrics, 85(1), 129–143.
75. Bodini, A., Bellingeri, M., Allesina, S., & Bondavalli, C. (2009). Using food web dominator trees to catch secondary extinctions in action. Philosophical Transactions of the Royal Society B: Biological Sciences, 364(1524), 1725–1731.
76. Dobson, A., Allesina, S., Lafferty, K., & Pascual, M. (2009). The assembly, collapse and restoration of food webs. Philosophical Transactions of the Royal Society B: Biological Sciences, 364(1524), 1803–1806.
77. Allesina, S., Bodini, A., & Pascual, M. (2009). Functional links and robustness in food webs. Philosophical Transactions of the Royal Society B: Biological Sciences, 364(1524), 1701–1709.
78. Allesina, S., & Pascual, M. (2009). Googling food webs: Can an eigenvector measure species' importance for coextinctions? PLoS Computational Biology, 5(9), e1000494.
79. Allesina, S., & Pascual, M. (2009). Food web models: A plea for groups. Ecology Letters, 12(7), 652–662.
80. Scotti, M., Bondavalli, C., Bodini, A., & Allesina, S. (2009). Using trophic hierarchy to understand food web structure. Oikos, 118(11), 1695–1702.
81. Allesina, S., Alonso, D., & Pascual, M. (2008). A general model for food web structure. Science, 320(5876), 658–661.
82. Allesina, S., & Pascual, M. (2008). Network structure, predator-prey modules, and stability in large food webs. Theoretical Ecology, 1(1), 55–64.
83. Lafferty, K. D., Allesina, S., Arim, M., Briggs, C. J., De Leo, G., Dobson, A. P., Dunne, J. A., Johnson, P. T. J., Kuris, A. M., Marcogliese, D. J., Martinez, N. D., Memmott, J., Marquet, P. A., McLaughlin, J. P., Mordecai, E. A., Pascual, M., Poulin, R., & Thielges, D. W. (2008). Parasites in food webs: The ultimate missing links. Ecology Letters, 11(6), 533–546.
84. Battini, D., Persona, A., & Allesina, S. (2007). Towards a use of network analysis: Quantifying the complexity of supply chain networks. International Journal of Electronic Customer Relationship Management, 1(1), 75–90.
85. Peacor, S. D., Allesina, S., Riolo, R. L., & Hunter, T. S. (2007). A new computational system, DOVE (digital organisms in a virtual ecosystem), to study phenotypic plasticity and its effects in food webs. Ecological Modelling, 205(1-2), 13–28.
86. Allesina, S., Bodini, A., & Bondavalli, C. (2006). Secondary extinctions in ecological networks: Bottlenecks unveiled. Ecological Modelling, 194(1-3 SPEC. ISS.), 150–161.
87. Bondavalli, C., Bodini, A., Rossetti, G., & Allesina, S. (2006). Detecting stress at the whole-ecosystem level: The case of a mountain lake (Lake Santo, Italy). Ecosystems, 9(5), 768–787.
88. Scotti, M., Allesina, S., Bondavalli, C., Bodini, A., & Abarca-Arenas, L. G. (2006). Effective trophic positions in ecological acyclic networks. Ecological Modelling, 198(3-4), 495–505.
89. Peacor, S. D., Allesina, S., Riolo, R. L., & Pascual, M. (2006). Phenotypic plasticity opposes species invasions by altering fitness surface. PLoS Biology, 4(11), 2112–2120.
90. Allesina, S., & Bodini, A. (2005). Food web networks: Scaling relation revisited. Ecological Complexity, 2(4), 323–338.
91. Allesina, S., Bodini, A., & Bondavalli, C. (2005). Ecological subsystems via graph theory: The role of strongly connected components. Oikos, 110(1), 164–176.
92. Allesina, S., Bondavalli, C., & Scharler, U. M. (2005). The consequences of the aggregation of detritus pools in ecological networks. Ecological Modelling, 189(1-2), 221–232.

93. Allesina, S., & Bodini, A. (2004). Who dominates whom in the ecosystem? Energy flow bottlenecks and cascading extinctions. Journal of Theoretical Biology, 230(3), 351–358.
94. Allesina, S., & Bondavalli, C. (2004). WAND: An ecological network analysis user-friendly tool. Environmental Modelling and Software, 19(4), 337–340.
95. Allesina, S., & Ulanowicz, R. E. (2004). Cycling in ecological networks: Finn’s index revisited. Computational Biology and Chemistry, 28(3), 227–233.
96. Allesina, S., & Bondavalli, C. (2003). Steady state of ecosystem flow networks: A comparison between balancing procedures. Ecological Modelling, 165(2-3), 221–229.

Preprints

1. Lechon-Alonso, P., Kundu, S., Lemos-Costa, P., Capitán, J. A., & Allesina, S. (2025). Robust coexistence in ecological competitive communities. bioRxiv.
2. Allesina, S. (2025). Global stability of ecological and evolutionary dynamics via equivalence. Proceedings of the National Academy of Sciences USA, In Revision.
3. Allesina, S., Miller, Z.R., & Serván, C.A. (2021). Intraspecific variation stabilizes classic predator-prey dynamics. bioRxiv.
4. Allesina, S., Sander, E., Smith, M.J., & Tang, S. (2013). Superelliptical laws for complex networks. arXiv.
5. Allesina, S. (2012). Measuring nepotism through shared last names: Response to Ferlazzo and Sdoia. arXiv.

Books, book reviews & chapters

1. Allesina, S. (2020). Going big. In A. Dobson, D. Tilman, & R. D. Holt (Eds.), Unsolved problems in ecology (pp. 374–379). Princeton University Press.
2. Allesina, S., & Grilli, J. (2020). Models for large ecological communities—a random matrix approach. In K. S. McCann & G. Gellner (Eds.), Theoretical ecology: Concepts and applications (pp. 74–92). Oxford University Press.
3. Allesina, S., & Wilmes, M. (2019). Computing skills for biologists — a toolbox. Princeton University Press.
4. Allesina, S. (2013). Food web stability, unapologetically – Book review. Ecology, 94, 2114–2115.
5. Bodini, A., Allesina, S., & Bondavalli, C. (2012). Network science in ecology: The structure of ecological communities and the biodiversity question (pp. 220–236).
6. Eklöf, A., & Allesina, S. (2012). Ecological networks. In A. Hastings & L. Gross (Eds.), Encyclopedia of theoretical ecology (pp. 470–478). U. California Press.
7. Allesina, S. (2009). Learning R the practical way – Book review. Ecology, 90, 2335–2336.
8. Allesina, S. (2008). Cycling and cycling indices. In S. E. Jorgensen & B. Fath (Eds.), Encyclopedia of ecology (pp. 812–819). Academic Press.
9. Allesina, S., & Bodini, A. (2008). Ascendency. In S. E. Jorgensen & B. Fath (Eds.), Encyclopedia of ecology (pp. 254–263). Academic Press.
10. Bodini, A., Bondavalli, C., & Allesina, S. (2007). L’ecosistema e le sue relazioni. Idee e strumenti per la valutazione di impatto e ambientale e di incidenza. Franco Angeli.

Support

NITMB

INFERRING MODELS FOR MICROBIAL DYNAMICS

- PI: Allesina and Mangan, two Co-PI

\$175,000

1/25 – 1/26

Chicago-Vienna

ADVANCING ECO-EVOLUTIONARY MODELING—THEORY AND APPLICATIONS

- PI: Allesina, two Co-PI

\$11,600

1/25 – 1/26

NITMB

INFERRING MODELS FOR MICROBIAL DYNAMICS

- PI: Allesina and Mangan, two Co-PI

\$121,814

1/24 – 1/25

FACCTS U. Chicago

MODELS WITH HIGHER-ORDER INTERACTIONS IN ECOLOGY, EVOLUTION, AND EPIDEMIOLOGY

- PI: Allesina, Co-PI: Massol

\$15,500

5/23 – 5/25

National Science Foundation

REVISITING THE RELATIONSHIP BETWEEN PHYLOGENETIC DIVERSITY AND PRODUCTIVITY DEB #2022742

- PI: Allesina

\$449,295

10/20 – 10/23

Burroughs Wellcome Fund Foundation

QUANTITATIVE AND STATISTICAL THINKING IN THE LIFE SCIENCES: QUANTITATIVE BIOLOGY FELLOWSHIPS

- PI: Allesina, five Co-PIs

\$150,000

10/10 – 10/20

National Science Foundation

REPRODUCIBILITY AND RIGOR IN QUANTITATIVE BIOLOGY: A HANDS-ON APPROACH NRT #1734818

- PI: Prince, Co-PI Allesina & Palmer

\$499,259

9/17 – 8/21

Human Frontier Science Program

CROSSING THE ULTIMATE TIPPING POINT: PREDICTING DEATH IN C. ELEGANS

- PI: Kammenga & Allesina

\$750,000

12/14 – 12/18

FACCTS U. Chicago

SPECTRAL CHARACTERIZATION OF ECOLOGICAL NETWORKS

- PI: Allesina & Thébault.

\$8,000

2/14 – 2/15

National Science Foundation

CAREER: SCIENTIFIC COMPUTING FOR A NEW GENERATION OF ECOLOGISTS DEB #1148867

- PI: Allesina

\$599,244

9/12 – 8/18

James S. McDonnell Foundation

BACTERIA TEST BIODIVERSITY THEORIES

- PI: Allesina Co-PI: Bergelson

\$449,817

8/10 – 7/14

National Science Foundation

ACCELERATING THE PACE OF DISCOVERY BY CHANGING THE PEER REVIEW ALGORITHM SBE EAGER #1042164

- PI: Allesina

\$240,073

8/10 – 7/14

National Science Foundation

THE SPIDER AND THE WEB: INFERENCE IN ECOLOGICAL NETWORKS EF #0827493

- PI: Pascual Co-PI: Allesina

\$636,000

9/08 – 8/14

Mentoring

GRADUATE STUDENTS

Si Tang (2010-2013), Elizabeth Sander (2012-2017) (with J.T. Wootton), Matthew Michalska-Smith (2013-2018), Carlos Marcelo Serván (2016-2020), Zach Miller (2017-2022), Pablo Lechon-Alonso (2021-)

POSTDOCS

Anna Eklöf (2010-2012), Phillip Staniczenko (2011-2013), Samraat Pawar (2012-2013), György Barabás (2014-2016), Madlen Wilmes (2015), Jacopo Grilli (2015-2017), Daniel Maynard (2017-2019), Srilena Kundu (2022-2024), Paula Lemos-Costa (2019-2024)

UNDERGRADUATE/PREDOCTORAL

Jose Rojas (2009-2010), Alex Zook (2009-2010), Philip Reinhold (2010-2011), M Moore (2010-2011), Jason Kopp (2011-2012), Matthew Smith (2012-2013), Michael Begun (2012-2013), Cody Weinberger (2013-2015), Theo Gibbs (2016-2018), Kevin Trickey (2017), Abby Skwara (2019-2021), Rukmini Harale (2025-)

Awards & Membership

- U. Chicago Biological Sciences Division, Distinguished Investigator Award (2018).
- NSF CAREER Award (2012).
- NCEAS postdoctoral associate (2007, 2 years of support).
- Italian Ministry of University - PhD Scholarship (2002, 3 years of support).
- International Society for Ecological Modeling young researcher bursary (2004).
- Member of the Ecological Society of America (starting 2005).
- Member of the British Ecological Society (starting 2010).

Service and leadership

UNIVERSITY OF CHICAGO

- College Council (nominated) and Committee of the College Council (elected), 2024-
- Committee on Future Academic Directions in Climate and Energy, advising President Alivisatos and Provost Lee, 2022
- Chair, Ecology & Evolution, 2021-

- Director of Graduate Studies, Ecology & Evolution, 2014-2021
- Committee on Promotion and Tenure, 2015-2020
- Committee on Assistant Professors, 2014-2015

EDITOR

- PLoS Computational Biology, Guest Editor (2012-2015), Associate Editor (2015-2017), Deputy Editor (2017-2021)
- Guest Editor for PNAS (2018), eLife (2015)
- Scientific Reports, Editor (2015-2017)
- Journal of Complex Networks, Associate Editor (2012-2017)
- Faculty of 1000, Population Ecology, (2011-2016)
- Oikos, Subject Editor (2009-2017)

REVIEWER

American Naturalist; Basic and Applied Ecology; Behavioral Ecology; Biological Reviews; Biology Letters; BioScience; Branco Weiss Fellowship; Briefings in Bioinformatics; Chaos; Ecography; Ecological Complexity; Ecological Engineering; Ecological Indicators; Ecological Modelling; Ecological Monographs; Ecology; Ecology Letters; Environmental Modelling & Assessment; Environmental Modelling & Software; Estuarine, Coastal and Shelf Science; European Physical Journal B; European Research Council; Fisheries Research; Global Ecology and Biogeography; Journal of Animal Ecology; Journal of Mathematical Biology; Journal of Robust and Nonlinear Control; Journal of the Association for Information Science and Technology; Journal of Theoretical Biology; Journal of the Royal Society Interface; Marine Ecology Progress Series; Marsden Fund – Royal Society of New Zealand; Methods in Ecology & Evolution; Microsoft Research; National Science Foundation; Nature; Nature Communications; Nature Ecology & Evolution; Nature Methods; Nature Physics; NERC; Oikos; Philosophical Transactions of the Royal Society Series B; Physical Reviews E; Physical Reviews X; Physics Letters A; PLoS Biology; PLoS Computational Biology; PLoS One; Proceedings of the National Academy of Sciences USA; Proceedings of the Royal Society Series B; Revue canadienne des sciences de l'information et de biblioeconomie; Science; Science Advances; Scientometrics; Sinauer Publishing; The Social Science Journal; The Lancet Global Health; Theoretical Ecology; Theoretical Population Biology; The Quarterly Review of Biology; Romanian National Council for Scientific Research; Scientific Reports; Trends in Ecology & Evolution; Trends in Parasitology; U. California Press; U. Chicago Press; U. Nebraska Omaha Internal Funding.

PANELIST

National Science Foundation (EF 2010, GRFP 2016)

ORGANIZER

- ICTS-ICTP Winter School on Quantitative Systems Biology (S. Allesina, J. Grilli, A. Goyal and M. Krishnadas) 2025
- NITMB Workshop on Random Dynamical Systems, with Applications in Biology (S. Allesina, A. Auffinger, N. Chandramoorthy, B. Doiron and M. Silber) 2024
- NITMB Workshop on Ecological Dynamics of Microbial Communities: new approaches (S. Allesina, L.A. Nunes Amaral and S. Kuehn) 2024
- BSD Boot Camp on Quantitative Biology (S. Allesina, S. Palmer and V. Prince) 2015-2019
- A primer in ecological networks: theory & data (A. Bodini, G. DeLeo, S. Allesina & C. Bondavalli) 2008

Teaching

Graduate

THEORETICAL ECOLOGY

2009–2011; 2023

Allesina & Dwyer

Graduate

THEORETICAL COMMUNITY ECOLOGY

2021–2022; 2025

Allesina

Undergraduate

FUNDAMENTALS OF BIOLOGICAL DATA ANALYSIS

2018–

Allesina & Kondrashov

Graduate

COMPUTING SKILLS FOR BIOLOGISTS

2012–2020

Allesina

Undergraduate

HOW CAN WE UNDERSTAND THE BIOSPHERE?

2016–2018

Allesina & Kronforst

Undergraduate

EVOLUTION & ECOLOGY

2009–2015

Allesina & Coyne

School

SERRAPHILIERA TRAINING IN QUANTITATIVE ECOLOGY

2025

Allesina, lecturer

School

ICTP-ICTS WINTER SCHOOL ON QUANTITATIVE SYSTEMS BIOLOGY

School

ICTP WINTER SCHOOL ON QUANTITATIVE SYSTEMS BIOLOGY: QUANTITATIVE APPROACHES IN ECOSYSTEM ECOLOGY, REMOTE

School

ICTP SAIFR SCHOOL ON COMMUNITY ECOLOGY, SÃO PAULO, BRAZIL

School

MINI COURSE ON COMPUTING SKILLS FOR BIOLOGISTS, EVÓRA, PORTUGAL

Graduate

MINI COURSE BIOS 248 SCIENTIFIC COMPUTING FOR ECOLOGISTS, STANFORD UNIVERSITY HOPKINS MARINE STATION

School

ICTP SPRING COLLEGE ON THE PHYSICS OF COMPLEX SYSTEMS, TRIESTE, ITALY

School

SÃO PAULO SCHOOL ON ECOLOGICAL NETWORKS, SÃO PAULO, BRAZIL

School

BIOLOGICAL NETWORKS, UNIVERSITY OF FRIBOURG, SWITZERLAND

School

ICTP THEORETICAL ECOLOGY AND GLOBAL CHANGE, TRIESTE, ITALY

School

ECOSYSTEM NETWORKS MODELING, UNIVERSITY OF COPENHAGEN, DENMARK

2025

Allesina, lecturer

2021

Allesina, lecturer

2020

Allesina, lecturer

2019

Allesina

2015

Allesina

2014

Allesina, lecturer

2011

Allesina, lecturer

2011

Allesina, lecturer

2009

Allesina, lecturer

2005–2006

Allesina, lecturer

Speaking

U. California San Diego, San Diego, CA.

ECOLOGY, BEHAVIOR AND EVOLUTION

May 16, 2025

U. Illinois at Urbana-Champaign, Urbana, IL.

MATHEMATICAL BIOLOGY SEMINAR

Apr 30, 2025

Université Gustave Eiffel, Paris, France.

ECOLOGICAL NETWORKS, COMPLEX SYSTEMS, STABILITY

Oct 28, 2024

Universidad Politécnica de Madrid, Madrid, Spain.

DEPARTMENT OF APPLIED MATHEMATICS

Oct 24, 2024

Simons Foundation, New York, NY.

LIFE SCIENCES WORKSHOP ON HIGHLY DIVERSE SYSTEMS

Oct 8, 2024

Cargèse, France.

COMPLEX AND GLASSY SYSTEMS

Jul 12, 2024

University of British Columbia, Vancouver, Canada.

BIODIVERSITY RESEARCH SEMINAR SERIES

Apr 3, 2024

Minneapolis, MN.

AMERICAN PHYSICAL SOCIETY MARCH MEETING 2024

Mar 4, 2024

Princeton University, Princeton, NJ.

ECOLOGY & EVOLUTIONARY BIOLOGY

Apr 6, 2023

Michigan State University, East Lansing, MI.

ECOLOGY, EVOLUTION AND BEHAVIOR + KELLOG BIOLOGICAL STATION

Oct 27-28, 2022

University of Chicago, Chicago, IL.

MULTISCALE MICROBIAL COMMUNITIES WORKSHOP

Feb 22, 2022

Washington University St. Louis, Remote.

DEPARTMENT OF PHYSICS

Nov 29, 2021

University of Chicago + CNRS, Remote.

CROSS-CUTTING THEORIES IN BIOLOGY

May 29, 2021

British Ecological Society, Remote.

ECOLOGY LIVE

Feb 18, 2021

Pennsylvania State University, Remote.

BIOMATHEMATICS SEMINAR

Feb 9, 2021

Iowa State University, Remote.

DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

Feb 4, 2021

Eawag Dubendorf, Switzerland, Remote.

ECO SEMINARS

Dec 19, 2020

Remote.

INTERNATIONAL INITIATIVE FOR THEORETICAL ECOLOGY SEMINARS

Nov 24, 2020

Princeton University, Remote.

BIOPHYSICS SEMINARS

Oct 19, 2020

Università di Parma, Italy

DEPARTMENT OF CHEMISTRY, LIFE SCIENCES AND ENVIRONMENTAL SUSTAINABILITY

June 28, 2019

Università di Padova, Padua, Italy.

DEPARTMENT OF PHYSICS

June 27, 2019

Massachusetts Institute of Technology, Cambridge, MA.

BIOPHYSICS SEMINAR

May 22, 2019

Harvard Medical School, Boston, MA.

GRADUATE SCIENCE EDUCATION SEMINAR

May 21, 2019

University of Chicago, Chicago, IL.

CENTER FOR DATA AND COMPUTING

May 17, 2019

University of Florida, Gainesville, FA.

DEPARTMENT OF EPIDEMIOLOGY

May 2, 2019

Yale University, New Haven, CT.

DEPARTMENT OF ECOLOGY & EVOLUTIONARY BIOLOGY

Apr 3, 2019

Naples, Italy.

STAZIONE ZOOLOGICA ANTON DOHRN

Oct 7, 2018

Paris, France.

NETSCI 2018 (SATELLITE)

June 12, 2018

Chicago, IL.

ISTITUTO ITALIANO DI CULTURA

Feb 23, 2018

University of Chicago, Chicago, IL.

EvMORPH SEMINAR

Jan 25, 2018

Georgia Institute of Technology, Atlanta, GA.

DEPARTMENT OF BIOLOGY

Nov 16, 2017

Massachusetts Institute of Technology, Cambridge, MA.

BIOPHYSICS SEMINAR

Oct 26, 2017

Workshop on Network Science, Pittsburgh, PA. Plenary Speaker.

SOCIETY FOR INDUSTRIAL AND APPLIED MATHEMATICS

Jul 13, 2017

Bloomington, IN. Keynote Speaker

AMERICAN MATHEMATICAL SOCIETY, SPRING CENTRAL SECTIONAL MEETING

Apr 1, 2017

Liverpool UK. Keynote Speaker.

BRITISH ECOLOGICAL SOCIETY ANNUAL MEETING

Dec 14, 2016

Michigan State University, East Lansing, MI.

SCIENCE AT THE EDGE

Oct 27, 2016

University of Chicago, Chicago IL.

COMPUTATION IN SCIENCE

Oct 12, 2016

Columbus, OH.

MATHEMATICAL BIOSCIENCES INSTITUTE

Apr 14, 2016

University of Chicago, Chicago, IL.

STATISTICS COLLOQUIUM

Feb 29, 2016

University of Florida, Gainesville, FL.

WILDLIFE ECOLOGY AND CONSERVATION SEMINARS

Feb 1, 2016

Santa Fe, NM.

SANTA FE INSTITUTE

Dec 11, 2015

DePaul University, Chicago, IL.

DEPARTMENT OF MATHEMATICS

Nov 13, 2015

Stanford University, Palo Alto, CA.

DEPARTMENT OF BIOLOGY

Oct 8, 2015

Venezia, Italy.	
LIVING SYSTEMS FROM INTERACTIONS TO CRITICAL BEHAVIOR	Sept 18-19, 2015
Baltimore, MD. Contributed.	
ECOLOGICAL SOCIETY OF AMERICA ANNUAL MEETING	Aug 14, 2015
ETH Zürich, Zurich, Switzerland.	
E3B SEMINAR SERIES	Mar 12, 2015
Linköping, Sweden. Keynote Speaker	
6TH SWEDISH MEETING IN MATHEMATICS IN BIOLOGY	Dec 5, 2014
Stony Brook University, Stony Brook, NY.	
GINZBURG COLLOQUIUM	Nov 5, 2014
University of Chicago, Chicago, IL.	
COMPUTATIONAL SOCIAL SCIENCE WORKSHOP	Oct 31, 2014
U. Illinois at Urbana-Champaign, Urbana, IL.	
NATURAL RESOURCES & ENVIRONMENTAL SCIENCES	Sept 19, 2014
Google, Mountain View, CA.	
Sci Foo	Aug 10, 2014
Center Interfacultaire Bernoulli, EPFL, Lausanne, Switzerland.	
BERNOULLI LECTURE	July 10, 2014
Woods Hole, MA.	
MARINE BIOLOGICAL LAB	May 5, 2014
University of California Davis, Davis, CA.	
GRADUATE GROUP IN ECOLOGY	Dec 5, 2013
Giessen, Germany. Keynote Speaker	
FOOD WEBS SCIENCE FOR IMPACT	Nov 13, 2013
Sakai, Japan. Keynote Speaker	
SOCIETY OF POPULATION ECOLOGY	Oct 12, 2013
University of Puerto Rico – Rio Piedras, San Juan, Puerto Rico.	
DEPARTMENT OF BIOLOGY	Apr 22, 2013
Leipzig, Germany. Invited	
iDiv	Mar 14, 2013
University of Oxford, Oxford, UK.	
MARTIN SCHOOL	Nov 1, 2012
University of Umeå, Umeå, Sweden.	
DEPARTMENT OF BIOLOGY	Sept 24, 2012
University of Michigan, Ann Arbor, MI.	
THEORY GROUP	Sept 14, 2012
Evanston, IL. Invited	
NETSci 2012	June 23, 2012
University of Guelph, CA. Keynote speaker	
BIOM&S SYMPOSIUM 2012	June 7, 2012
University of Chicago, Chicago IL.	
DEPARTMENT OF ECOLOGY & EVOLUTION	May 14, 2012
University of Amsterdam, Amsterdam, the Netherlands. Keynote speaker	
INSTITUTE FOR BIODIVERSITY AND ECOSYSTEM DYNAMICS	Apr 26, 2012
University of Toronto, Toronto, Canada. Keynote speaker	
EEB RETREAT	Apr 13, 2012
Case Western Reserve, Cleveland, OH.	
BIOLOGY	Apr 6, 2012
Chicago, IL. Invited	
CHICAGO HUMANITIES FESTIVAL	Oct 23, 2011
University of Sao Paulo, Sao Paulo, Brazil. Invited	
BIOLOGY	Sept 15, 2011
University of Campinas, Brazil, Campinas, Brazil.	
BIOLOGY	Sept 14, 2011

Iowa State University, Ames, IA. ECOLOGY AND EVOLUTIONARY BIOLOGY	<i>Sept 1 and 2, 2011</i>
Austin, TX. Contributed. ECOLOGICAL SOCIETY OF AMERICA ANNUAL MEETING	<i>Aug 8, 2011</i>
La Crosse, WI. Invited INTERNATIONAL ENVIRONMETRICS SOCIETY – REGIONAL MEETING	<i>July 18, 2011</i>
Riva del Garda, Italy. Contributed. EUROPEAN CONFERENCE ON ECOLOGICAL MODELING	<i>June 2, 2011</i>
Leeds, UK. Invited BRITISH ECOLOGICAL SOCIETY ANNUAL MEETING	<i>Sept 7, 2010</i>
Università di Parma, Parma, Italy. Invited DIPARTIMENTO DI SCIENZE AMBIENTALI	<i>Jul 7, 2010</i>
University of Chicago, Chicago, IL. Invited 1ST SPARK RECEPTION AGENT-BASED MODELING.	<i>Apr 29, 2010</i>
University of Michigan, Ann Arbor, MI. Invited CSCS	<i>Apr 22, 2010</i>
University of California Santa Barbara, Santa Barbara, CA. BREN SCHOOL	<i>Feb 16, 2010</i>
University of Illinois at Chicago, Chicago, IL. DEPARTMENT OF BIOLOGY	<i>Feb 2, 2010</i>
Northwestern University, Evanston, IL. THE NORTHWESTERN INSTITUTE ON COMPLEX SYSTEMS (NICO)	<i>Dec 9, 2009</i>
Santa Barbara, CA. NCEAS ECOLUNCH	<i>Oct 9, 2009</i>
Milwaukee, WI. Contributed. ECOLOGICAL SOCIETY OF AMERICA ANNUAL MEETING	<i>Aug 4, 2008</i>
Santa Barbara, CA. NCEAS ECOLUNCH	<i>May 5, 2008</i>
University of Chicago, Chicago, IL. Invited DEPARTMENT OF ECOLOGY & EVOLUTION	<i>April 16, 2008</i>
University of Michigan, Ann Arbor, MI. Invited EARLY CAREER SCIENTISTS SYMPOSIUM	<i>March 15, 2008</i>
San Jose, CA. Invited ECOLOGICAL SOCIETY OF AMERICA ANNUAL MEETING	<i>Aug 8, 2007</i>
San Jose, CA. Invited SOCIETY FOR MATHEMATICAL BIOLOGY ANNUAL MEETING	<i>Aug 3, 2007</i>
Università di Parma, Parma, Italy. Invited DIPARTIMENTO DI SCIENZE AMBIENTALI	<i>Feb 20, 2007</i>
Copenhagen, Denmark. Invited NIELS BOHR INSTITUTE - CENTER FOR MODELS OF LIFE	<i>Feb 15, 2007</i>
Memphis, TN. Contributed. ECOLOGICAL SOCIETY OF AMERICA ANNUAL MEETING	<i>Aug 9, 2006</i>
Copenhagen, Denmark. Invited UNIVERSITY OF COPENHAGEN	<i>Jun 7, 2006</i>
Università di Parma, Parma, Italy. Invited DIPARTIMENTO DI SCIENZE AMBIENTALI	<i>Jun 5, 2006</i>
Budapest, Hungary. Invited COLLEGIUM BUDAPEST, INSTITUTE FOR ADVANCED STUDY	<i>May 26, 2006</i>
University of Maryland, Solomons, MD. Invited CHESAPEAKE BIOLOGICAL LABORATORY	<i>Nov 28, 2005</i>
Montreal, Canada. Contributed ECOLOGICAL SOCIETY OF AMERICA ANNUAL MEETING	<i>Aug 9, 2005</i>
Bled, Slovenia. Contributed FOURTH EUROPEAN CONFERENCE ON ECOLOGICAL MODELLING	<i>Sept 29, 2004</i>

