

Zhian N. Kamvar

Curriculum Vitae

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EDUCATION

2011–Present **Ph.D. Plant Pathology**, *Oregon State University (OSU)*, Corvallis, OR.
Expected 2017

2007 **B.S. Biology**, *Truman State University (TSU)*, Kirksville, MO.
Minor: Chemistry

RESEARCH

2012–Present **Thesis Research**, *Grünwald Lab*, OSU, Corvallis, OR.

My goal is to determine pattern and process in the evolution of the plant pathogen *Phytophthora syringae* by utilizing population genomic tools to analyze genetic differentiation within and among nursery populations.

Details:

- Designed simulation analyses for populations of partially clonal diploids
- Authored R package for genetic analysis with mixed (sexual/clonal) reproduction (<https://github.com/grunwaldlab/poppr>)
- Isolated, maintained, and extracted DNA from cultures of *Phytophthora syringae* for the purposes of Genotyping By Sequencing.
- **Research Advisor: Dr. Niklaus J. Grünwald**

Aug–Dec **Rotation**, *Jaiswal Lab*, OSU, Corvallis, OR.

2011 Engaged in various research projects combining bioinformatic-based text mining of databases, wet lab, and greenhouse work. **Research Advisor: Dr. Pankaj Jaiswal**

2006–2007 **Undergraduate Research Assistant**, *Biology Discipline*, TSU, Kirksville, MO.

As part of a team of undergraduate students, contributed to the annotation of over 2,000 maize genes determined by microarray hybridization analysis to be involved in maize shoot apical meristem functional and leaf primordial formation.

Details:

- Became proficient in performing and interpreting BLAST and InterProScan searches on sequences, identifying and assessing pertinent primary literature, and using a variety of databases to determine the putative function of maize genes.
- Collaborated with other researchers on the same project.
- **Research Mentors: Drs. Brent Buckner and Diane Janick-Buckner**

SOFTWARE

Main Author

2012–Present **poppr** *R package for analysis of populations with mixed reproductive modes*

Contributor

2015–Present **adegenet** *R package for multivariate analysis of population genetics*

2013–Present **phytophthora-id** *Web application for identification of clonal lineages of two
Phytophthora species*

COMPUTER SKILLS

Advanced R

Intermediate PYTHON, PERL, C, L^AT_EX, OpenOffice, Linux, OSX

Basic BASH, Inkscape

LANGUAGES

English **Mother tongue**

Korean **Intermediate** *Can manage basic conversation*

TEACHING

2014 **Population Genetics in R, Workshop.**

Co-instructed a workshop with Niklaus Grünwald and Sydney Everhart. This workshop introduces tools and concepts that allow researchers to easily perform population genetic analyses in the R statistical environment. <http://grunwaldlab.cgrb.oregonstate.edu/popgen>

Sessions:

- May 17, 2014 Oregon State University
- August 9, 2014 American Phytopathology Society (APS) 2014 National Conference

Spring 2012 **Graduate Teaching Assistant, Biology Dept., OSU, Corvallis, OR.**

Lead laboratories of ~48 students in organismal diversity, organ systems, plant and animal physiology, genetics, evolution and ecology.

Responsibilities:

- Developed introductory presentations for quizzes and labs
- Proctored all tests and quizzes
- Graded assignments and provided students with timely feedback
- Held office hours once a week

2009–2011 **English Instructor**, *Herald NIE*, Joong-Dong, Daegu, South Korea.

Taught basic to intermediate English to Korean students ranging from elementary to middle school with an emphasis on task-based learning techniques.

Details:

- Took charge of 18 different classes per week
- Monitored language acquisition of each student via monthly evaluations based on interviews and speaking tests
- Wrote tests, assigned and graded homework pertinent to the level of the students. Initiated and mediated interesting topics for discussion courses

2008–2009 **English Instructor**, *GnB English*, Sangin-2-Dong, Daegu, South Korea.

Taught basic to intermediate English to Korean students ranging from elementary to middle school in tandem with one of the nine Korean English teachers at the academy.

Details:

- Assisted with at least 30 different classes per week
- Monitored language acquisition of students throughout the year
- Gained the ability to be prepared for sudden changes in curriculum and classroom size.

Fall 2006/07 **Undergraduate Teaching Assistant**, *Biology Discipline*, TSU, Kirksville, MO.

Appointed as teaching assistant for undergraduate cell biology course.

Details:

- Helped prepare instructional labs for students of Dr. Diane Janick-Buckner's Cell Biology Students
- Responded to student lab questions and referred to professor questions outside of my expertise/knowledge base

OUTREACH AND SERVICE

2012–Present **Radio Co-host**, *Inspiration Dissemination*, KBVR FM, OSU, Corvallis.

Co-created, produced, and hosted a weekly radio show interviewing graduate students in STEM fields about their research and experiences in graduate school.

Details:

- Provided opportunity for graduate students a unique form of outreach.
- Facilitated education of media students by providing audio editing opportunities post producing recorded episodes.
- Actively worked with graduate students to improve their science communication skills.

2012–Present **Active Contributor**, *Bioinformatics Users Group*, OSU.

Contributed presentations and discussions relevant to use of bioinformatics tools.

2004–2007 **Radio Announcer**, KTRM FM, TSU, Kirksville, MO.

I ensured successful operation of the transmitter, covered extra scheduled shifts to ensure KTRM stayed on air, and selected appropriate play-lists for listeners.

LEADERSHIP

2012–2014 **Treasurer**, *Graduate Student Association*, Department of Botany and Plant Pathology, OSU.

Balanced the budget, served on bi-annual travel awards committee, helped organize and coordinate group social functions.

Summer 2005 **Summer Station Manager**, KTRM FM, TSU, Kirksville, MO.

I was the primary authority on personnel decisions, after input from team members. I organized the weekly schedule of DJs, determined the salaries of station directors and balanced a budget.

AWARDS

2014 OSU Botany and Plant Pathology Anita Summers Travel Award – \$1000

2014 Most Innovative [Radio] Program – Intercollegiate Broadcasting System

2013 Seattle Institute For Statistical Genetics Travel Award – \$450

2006 Truman State University Summer Research Stipend – \$3000

2003 Truman State University Presidential Leadership Scholarship – \$2000

PEER REVIEWED PUBLICATIONS

1. **Kamvar ZN**, Larsen MM, Kanaskie AM, Hansen EM, and Grünwald NJ. Spatial and temporal population dynamics of the sudden oak death epidemic in Oregon forests. *Phytopathology*. **submitted**.
2. Weiland JE, Garrido PA, **Kamvar ZN**, Marek SM, Grünwald NJ, and Garzón CD. Population structure of *Pythium irregulare*, *P. sylvaticum*, and *P. ultimum* in forest nursery soils of Oregon and Washington. *Phytopathology*. **in press**.
3. **Kamvar ZN**, Tabima JF, Grünwald NJ. (2014) *Poppr*: an R package for genetic analysis of populations with clonal, partially clonal, and/or sexual reproduction. *PeerJ* **2**: e281 <http://dx.doi.org/10.7717/peerj.281>
4. Buckner B, Beck J, Browning, K, Hoxha E, Grantham L, **Kamvar ZN**, Lough A, Nikolova O, and Schnable PS, Scanlon MJ, and Janick-Buckner D. (2007) Involving undergraduates in the annotation and analysis of global gene expression studies: creation of a maize shoot apical meristem expression database. *Genetics* **176**: 741-747 <http://dx.doi.org/10.1534/genetics.106.066472>

PRESENTATIONS

1. **Kamvar ZN**, Tabima JF, Grünwald NJ. (2014) Application of the R package poppr for analysis of population genetic data. American Phytopathological Society National Conference, Minneapolis, MN.

2. **Kamvar ZN** (2013) Ph.D. Proposal Seminar: Determination of pattern and process in the evolution of the plant pathogen *Phytophthora syringae*. Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR.
3. **Kamvar ZN** (2013) *Poppr*: An R package for genetic analysis of populations with mixed (clonal/sexual) reproduction. Biology Graduate Student Symposium, Hatfield Marine Science Center, Newport OR.
4. **Kamvar ZN**, Tabima JF, Grünwald NJ (2013) *Poppr*: An R package for genetic analysis of populations with mixed (clonal/sexual) reproduction. Fungal Genetics Conference, Asilomar, CA.
5. **Kamvar ZN**, Grünwald NJ (2012) *Poppr*: An R package for population genetic analysis. OSU Fall CGRB Conference, Oregon State University, Corvallis, OR.
6. Browning K, Fritz A, Hoxha E, and **Kamvar ZN** (2007) Annotation and analysis of global gene expression studies: creation of a maize shoot apical meristem expression database, Maize Genetics Conference, St. Charles, IL.
7. Browning K, Fritz A, Hoxha E, and **Kamvar ZN** (2007) Annotation and analysis of global gene expression studies: creation of a maize shoot apical meristem expression database, Truman Student Research Conference, Truman State University, Kirksville, MO.