

Genomics, Phenomics and Bioinformatics

Department Information

- **Program Director:**
Phillip McClean, Ph.D.
- **Email:**
Phillip.McClean@ndsu.edu
- **Department Location:**
Plant Sciences, Loftsgard Hall
- **Department Phone:**
(701) 231-8443
- **Application Deadline:**
International applications are due May 1 for fall semester and August 1 for spring and summer semesters. Domestic applicants should apply at least one month prior to the start of classes.
- **Credential Offered:**
Ph.D., M.S.
- **English Proficiency Requirements:**
TOEFL iBT 71, IELTS 6; Duolingo 100

Genomics, Phenomics and Bioinformatics is an interdisciplinary graduate program that involves around 30 faculty from six departments and three colleges. The program initially focused on Genomics and Bioinformatics. In 2021, the program underwent a major change. This was prompted by advances in high-throughput phenotyping, and the growing importance of phenomics data and its direct relationship to genes controlling traits. Based on those relations, phenomics was added as another research track.

Students in the program will perform advanced study, training and research in areas that focus on functional genomics, high-throughput phenotyping, and computation analysis of genomic and phenomic data. This will lead to an understanding of the many -omics fields interact to understand how a phenotype is expressed.

The program is designed to provide both Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) students the necessary skills and intellectual background to work cooperatively with others in a research areas that take systems-wide approach to the study of the organization and expression of the many genes and their products expressed in an organism. Exposure to modern techniques and instrumentation will prepare the student for success in both industrial and academic careers.

Students can obtain a M.S. or Ph.D. in either the functional genomics, bioinformatics, or phenotypics tracks. Comprehensive options are available for all three tracks for M.S. students.

It is the intent of the program to admit students in one of three tracks. The Functional Genomics track will be for students interested in the generation and application of genomic information. The Computational Bioinformatics track is intended for students interested in using computer science and statistical approaches to analyze large amounts of genomic data. The Phenomics track will be attractive to students interested in the application of high-throughput equipment to measure important traits necessary for full expression of the traits necessary for the organism to productively complete its life cycle.

The Genomics graduate program is open to qualified graduates of universities of recognized standing. The Graduate School minimum for the TOEFL examination applies. In addition, the following are the requirements to be admitted with full standing.

Functional Genomics track: a Bachelor of Science (B.S.) degree an introductory biology class emphasizing molecular biology; with courses in genetics, physiology, biochemistry; an upper-division statistics class. A minimum undergraduate GPA of 3.0.

Bioinformatics and Phenomics tracks: a B.S. degree with an introductory biology class emphasizing molecular biology; with courses in calculus, upper-division statistics class, calculus or matrix algebra, and programming language experience. A minimum undergraduate GPA of 3.0.

Students can be accepted conditionally into any track without meeting the course or GPA requirements, but will be required to meet those requirements while in residency.

Adviser and Graduate Committee

During the first year, the student will form a graduate committee and submit the Plan of Study to the Graduate School. The committee must include the student's major adviser, at least one other faculty member of the Genomics, Phenomics, and Bioinformatics program, and a third member from outside the student's home college. For Ph.D. students only, a fourth member of the committee serves as the Graduate School Representative (GSR). The GSR must be a full member of the graduate faculty, AND be either a tenured faculty member outside the committee chair's/co-chairs' home

department(s) OR a faculty member outside the primary college of the committee chair/co-chairs. For this interdisciplinary program, the GSR must ALSO be outside of the program. Additionally, the GSR must be clear of any conflicts of interest with either the student or the committee chair/co-chairs. Examples of possible conflicts of interest may include budgetary relationships, family or financial, personal relationships, or research and/or publication relationships between the GSR and either the student or the committee chair.

Master's Program

| Code | Title | Credits |
|--|--|---------|
| Functional Genomics - Thesis Option | | |
| Core Courses | | |
| PLSC 611 | Genomics | 3 |
| CSCI/MATH/STAT 732 | Introduction To Bioinformatics | 3 |
| PLSC 721 | Genomics Techniques (BIOC 674 is 3 credits) | 2 |
| or BIOC 674 | Methods of Recombinant DNA Technology | |
| 796 Current Topics in Genomics (1 credit, 2 semesters) | | 2 |
| 790 Graduate Seminar | | 1 |
| Electives - At least one course from two of the following elective areas: Physiology, Gene Expression, Genetics and Genomics | | 9 |
| 798 Master's Thesis (6-10) | | |
| Total Credits | | 30 |

| Code | Title | Credits |
|---|---------------------------------------|---------|
| Functional Genomics Comprehensive Study Option | | |
| PLSC 611 | Genomics | 3 |
| CSCI 732 | Introduction To Bioinformatics | 3 |
| PLSC 721 | Genomics Techniques (or) | 2 |
| BIOC 674 | Methods of Recombinant DNA Technology | 3 |
| 796 Current Topics (1 credit, 2 semesters) | | 2 |
| 790 Graduate Seminar | | 1 |
| Electives - At least one course from each of the following elective areas: Physiology, Gene Expression, Genetics and Genomics | | |
| 797 Master's Paper | | 4 |
| Total Credits | | 30 |

| Code | Title | Credits |
|---|---|---------|
| Bioinformatics - Thesis Option | | |
| PLSC 611 | Genomics | 3 |
| CSCI 732 | Introduction To Bioinformatics | 3 |
| CSCI 859 | Computational Methods in Bioinformatics | 3 |
| 796 Current Topics (1 credit, two semesters) | | 2 |
| 790 Graduate Seminar | | 1 |
| Electives - Computer Science, Statistics, Computational Biology | | 9 |
| 798 Master's Thesis | | 6-10 |
| Total Credits | | 30 |

| Code | Title | Credits |
|---|---|---------|
| Bioinformatics Comprehensive Study Option | | |
| PLSC 611 | Genomics | 3 |
| CSCI 732 | Introduction To Bioinformatics | 3 |
| CSCI 859 | Computational Methods in Bioinformatics | 3 |
| 796 Current Topics (1 credit, 2 semesters) | | 2 |
| 790 Graduate Seminar | | 1 |
| Electives - From the Computer Science, Statistics, Computational Biology elective areas | | 15 |

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| 797 Master's Paper | 4 |
| Total Credits | 30 |

| Code | Title | Credits |
|---|--|----------------|
| Phenomics Thesis Option | | |
| CSCI 679 | Introduction to Data Mining | 3 |
| ABEN 747 | Numerical Modeling of Environmental and Biological Systems | 3 |
| Physiology Elective | | 3 |
| 796 Special Topics (1 credit, 2 semesters) | | 2 |
| 790 Graduate Seminar | | 1 |
| Electives - At least one course from the Modling and Sensing and Computer Science, Statistics, and Computational Biology elective areas | | 9 |
| 798 Master's Thesis | | 6-10 |
| Total Credits | | 30 |

| Code | Title | Credits |
|--|---|----------------|
| Physiology Electives | | |
| ANSC 663 | Physiology of Reproduction | 3 |
| BIOL 660 | Animal Physiology | 3 |
| BIOL 662 | Physiological Ecology | 3 |
| BIOL 664 | Endocrinology | 3 |
| BIOL 683 | Cellular Mechanisms of Disease | 3 |
| BIOL 825 | Biology of Aging | 3 |
| BIOL 861 | Advanced Physiology - Physiology of Extremes | 3 |
| MICR 650 | Infectious Disease Pathogenesis | 3 |
| MICR 680 | Microbial Physiology | 3 |
| PPTH 751 | Physiology Of Plant Disease | 3 |
| PLSC 686 | Applied Crop Physiology | 3 |
| PLSC 750 | Crop Stress Physiology | 3 |
| PSCI 747 | Cardiovascular Pharmacology | 3 |
| PSCI 762 | Advanced Biopharmaceutics | 2 |
| PSCI 765 | Cancer Cell Biology | 2 |
| Gene Expression | | |
| BIOC 660 | Foundations of Biochemistry and Molecular Biology I | 3 |
| BIOC 683 | Cellular Signal Transduction Processes and Metabolic Regulation | 3 |
| BIOC 719 | Molecular Biology of Gene Expression and Regulation | 3 |
| BIOC 723 | Structural Basis of Membrane Transport and Signaling | 3 |
| BIOL 682 | Developmental Biology | 3 |
| BIOL 820 | Advanced Cell Biology | |
| MICR 775 | Molecular Virology | 3 |
| PLSC 731 | Plant Molecular Genetics | 3 |
| Genetics and Genomics Electives | | |
| ANSC 657 | Genetic Improvement of Livestock | 3 |
| ANSC 750 | Quantitative Genetics Applications of Matrix Algebra | 1 |
| ANSC 751 | A Primer to Quantitative Genetics | 1 |
| ANSC 752 | Selection Index Theory and Application | 1 |
| BIOL 679 | Biomedical Genetics and Genomics | 3 |
| BIOL 859 | Evolution | 3 |
| BIOL 860 | Evolutionary Ecology | 3 |
| BIOL 862 | Environment and Adaptation | 3 |
| MICR 681 | Microbial Genomics with Computational Laboratory | 3 |
| MICR 682 | Microbial Genetics | 3 |
| MICR 783 | Advanced Bacterial Genetics and Phage | 3 |

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| PLSC 631 | Intermediate Genetics (required for Functional Genomics Option) | 3 |
| PLSC 741 | Cytogenetics | 4 |
| PLSC 751 | Advanced Plant Genetics | 3 |
| PLSC 782 | Population and Quantitative Genetics | |
| PPTH 755 | Population Biology of Plant Pathogens | 3 |
| PPTH 759 | Host-Parasite Genetics | 3 |
| PSCI 617 | Pharmacogenomics | 2 |
| Computer Science, Statistics, and Computational Biology Electives | | |
| ANSC 850 | Linear Models in Animal Breeding | 1 |
| ANSC 851 | Genetic Prediction | 1 |
| ANSC 852 | Applied Variance Component Estimation | 1 |
| ANSC 856 | Prediction and Control of Inbreeding in Breeding Programs | 1 |
| BIOL 842 | Quantitative Biology | 3 |
| BIOL 877 | Analysis of Population and Demographic Data | 3 |
| CSCI 679 | Introduction to Data Mining | 3 |
| CSCI 724 | Survey of Artificial Intelligence | 3 |
| CSCI 736 | Advanced Intelligent Systems | 3 |
| CSCI 765 | Introduction To Database Systems | 3 |
| CSCI 879 | Advanced Data Mining | 3 |
| MATH 630 | Graph Theory | 3 |
| MATH 636 | Combinatorics | 3 |
| MATH 684 | Mathematical Methods of Biological Processes | 3 |
| MATH 830 | Graph Theory | 3 |
| MATH 839 | Topics in Combinatorics and Discrete Mathematics | 3 |
| MATH 867 | Topics in Applied Mathematics | 3 |
| MICR 724 | Applied Epidemiology and Biostatistics | 3 |
| PLSC 749 | Applied Plant Molecular Breeding | 3 |
| PH 674 | Epidemiology | 3 |
| PH 706 | Essentials of Epidemiology | 3 |
| PH 731 | Biostatistics | 3 |
| PH 750 | Epidemiologic Methods I | 2 |
| PH 752 | Epidemiologic Methods II | 2 |
| PLSC 724 | Field Design I | 3 |
| STAT 650 | Stochastic Processes | 3 |
| STAT 661 | Applied Regression Models (required for Bioinformatics Ph.D. option) | 3 |
| STAT 711 | Basic Computational Statistics using R | 3 |
| STAT 712 | Applied Statistical Machine Learning | 3 |
| STAT 713 | Introduction to Data Science | 3 |
| STAT 714 | Statistical Big Data Visualization | 3 |
| STAT 725 | Applied Statistics | 3 |
| STAT 764 | Multivariate Methods | 3 |
| STAT 840 | Introduction to Statistical Design and Analysis of Gene Expression Experiments | 3 |
| STAT 851 | Bayesian Statistical Inference | 3 |
| STAT 860 | Statistical Machine Learning | 3 |
| Modeling and Sensing Electives | | |
| ABEN 747 | Numerical Modeling of Environmental and Biological Systems | 3 |
| ABEN 758 | Applied Computer Imaging and Sensing for Biosystems | 3 |
| CE 725 | Biomaterials-Materials in Biomedical Engineering | 3 |
| CSCI 628 | Spatial Data Science | 3 |
| GEOG 655 | Introduction to Geographic Information Systems | 4 |
| GEOG 656 | Advanced Geographic Information Systems | 3 |
| GEOG 670 | Remote Sensing | 3 |

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| GEOG 680 | Geographic Information Systems Pattern Analysis and Modeling | 3 |
| PAG 654 | Applications of Precision Agriculture | 3 |

Doctoral Program

| Code | Title | Credits |
|---|---|-------------|
| Functional Genomics | | |
| PLSC 611 | Genomics | 3 |
| CSCI 732 | Introduction To Bioinformatics | 3 |
| PLSC 721 | Genomics Techniques (or) | 2 |
| or BIOC 674 | Methods of Recombinant DNA Technology | |
| 796 Current Topics (1 credit, 3 semesters) | | 3 |
| 790 Graduate Seminar (1 credit, 2 semesters) | | 2 |
| Requested Core Courses (unless in M.S. transcript) | | |
| PLSC 631 | Intermediate Genetics | 3 |
| STAT 726 | Applied Regression and Analysis of Variance | 3 |
| Graduate Evolution Course | | |
| Electives - At least one course from each of the following elective areas: Physiology, Gene Expression, Genetics and Genomics | | 15 |
| 899 Doctoral Dissertation | | up to 90 |

| Code | Title | Credits |
|---|---|-------------|
| Bioinformatics Option | | |
| PLSC 611 | Genomics | 3 |
| CSCI 732 | Introduction To Bioinformatics | 3 |
| CSCI 859 | Computational Methods in Bioinformatics | 3 |
| 796 Current Topics (1 credit, 3 semesters) | | 3 |
| 790 Graduate Seminar (1 credit, 2 semesters) | | 2 |
| Required Core Courses (unless in M.S. transcript) | | |
| CSCI 679 | Introduction to Data Mining | 3 |
| CSCI 765 | Introduction To Database Systems | 3 |
| STAT 661 | Applied Regression Models | 3 |
| Electives - From the Computer Science, Statistics, Computational Biology elective areas | | 15 |
| 899 Doctoral Dissertation | | up to 90 |

| Code | Title | Credits |
|---|--|-------------|
| Phenomics Option | | |
| CSCI 679 | Introduction to Data Mining | 3 |
| ABEN 747 | Numerical Modeling of Environmental and Biological Systems | 3 |
| Physiology Course | | |
| 796 Current Topics (1 credit, 3 semesters) | | 3 |
| 790 Graduate Seminar (1 credit, 2 semesters) | | 2 |
| STAT 726 | Applied Regression and Analysis of Variance | 3 |
| CSCI 765 | Introduction To Database Systems | 3 |
| Electives - At least one course from the Modling and Sensing and Computer Science, Statistics, and Computational Biology elective areas | | 15 |
| 899 Doctoral Dissertation | | up to 90 |

| Code | Title | Credits |
|--|---|---------|
| Physiology Electives | | |
| ANSC 663 | Physiology of Reproduction | 3 |
| BIOL 662 | Physiological Ecology | 3 |
| BIOL 664 | Endocrinology | 3 |
| BIOL 683 | Cellular Mechanisms of Disease | 3 |
| BIOL 825 | Biology of Aging | 3 |
| MICR 650 | Infectious Disease Pathogenesis | 3 |
| MICR 680 | Microbial Physiology | 3 |
| MICR 785 | Pathobiology | 3 |
| PPTH 751 | Physiology Of Plant Disease | 3 |
| PLSC 686 | Applied Crop Physiology | 3 |
| PLSC 750 | Crop Stress Physiology | 3 |
| PSCI 747 | Cardiovascular Pharmacology | 3 |
| PSCI 762 | Advanced Biopharmaceutics | 2 |
| PSCI 765 | Cancer Cell Biology | 2 |
| Gene Expression Electives | | |
| BIOC 660 | Foundations of Biochemistry and Molecular Biology I | 3 |
| BIOC 683 | Cellular Signal Transduction Processes and Metabolic Regulation | 3 |
| BIOC 719 | Molecular Biology of Gene Expression and Regulation | 3 |
| BIOC 723 | Structural Basis of Membrane Transport and Signaling | 3 |
| BIOL 682 | Developmental Biology | 3 |
| BIOL 820 | Advanced Cell Biology | 3 |
| MICR 775 | Molecular Virology | 3 |
| PLSC 731 | Plant Molecular Genetics | 3 |
| Genetics and Genomics Electives | | |
| ANSC 657 | Genetic Improvement of Livestock | 3 |
| ANSC 750 | Quantitative Genetics Applications of Matrix Algebra | 1 |
| ANSC 751 | A Primer to Quantitative Genetics | 1 |
| ANSC 752 | Selection Index Theory and Application | 1 |
| BIOL 679 | Biomedical Genetics and Genomics | 3 |
| BIOL 859 | Evolution | 3 |
| BIOL 860 | Evolutionary Ecology | 3 |
| BIOL 862 | Environment and Adaptation | 3 |
| MICR 681 | Microbial Genomics with Computational Laboratory | 3 |
| MICR 682 | Microbial Genetics | 3 |
| PPTH 755 | Population Biology of Plant Pathogens | 3 |
| PPTH 759 | Host-Parasite Genetics | 3 |
| PLSC 631 | Intermediate Genetics | 3 |
| PLSC 741 | Cytogenetics | 3 |
| PLSC 751 | Advanced Plant Genetics | 3 |
| PLSC 782 | Population and Quantitative Genetics | 3 |
| PSCI 617 | Pharmacogenomics | 2 |
| Computer Science, Statistics, and Computational Biology Electives | | |
| ANSC 850 | Linear Models in Animal Breeding | 1 |
| ANSC 851 | Genetic Prediction | 1 |
| ANSC 852 | Applied Variance Component Estimation | 1 |
| ANSC 856 | Prediction and Control of Inbreeding in Breeding Programs | 1 |
| BIOL 842 | Quantitative Biology | 3 |
| BIOL 877 | Analysis of Population and Demographic Data | 3 |
| CSCI 679 | Introduction to Data Mining | 3 |
| CSCI 724 | Survey of Artificial Intelligence | 3 |

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| CSCI 736 | Advanced Intelligent Systems | 3 |
| CSCI 765 | Introduction To Database Systems | 3 |
| CSCI 879 | Advanced Data Mining | 3 |
| MATH 630 | Graph Theory | 3 |
| MATH 636 | Combinatorics | 3 |
| MATH 830 | Graph Theory | 3 |
| MATH 839 | Topics in Combinatorics and Discrete Mathematics | 3 |
| MATH 864 | Calculus Of Variations | 3 |
| MATH 867 | Topics in Applied Mathematics | 3 |
| MICR 724 | Applied Epidemiology and Biostatistics | 3 |
| PLSC 749 | Applied Plant Molecular Breeding | 3 |
| PH 674 | Epidemiology | 3 |
| PH 706 | Essentials of Epidemiology | 3 |
| PH 731 | Biostatistics | 3 |
| PH 750 | Epidemiologic Methods I | 2 |
| PH 752 | Epidemiologic Methods II | 2 |
| PLSC 724 | Field Design I | 3 |
| STAT 650 | Stochastic Processes | 3 |
| STAT 661 | Applied Regression Models | 3 |
| STAT 711 | Basic Computational Statistics using R | 3 |
| STAT 712 | Applied Statistical Machine Learning | 3 |
| STAT 713 | Introduction to Data Science | 3 |
| STAT 714 | Statistical Big Data Visualization | 3 |
| STAT 725 | Applied Statistics | 3 |
| STAT 726 | Applied Regression and Analysis of Variance | 3 |
| STAT 764 | Multivariate Methods | 3 |
| STAT 840 | Introduction to Statistical Design and Analysis of Gene Expression Experiments | 3 |
| STAT 851 | Bayesian Statistical Inference | 3 |
| STAT 860 | Statistical Machine Learning | 3 |
| Modeling and Sensing Electives | | |
| ABEN 747 | Numerical Modeling of Environmental and Biological Systems | 3 |
| ABEN 758 | Applied Computer Imaging and Sensing for Biosystems | 3 |
| CE 725 | Biomaterials-Materials in Biomedical Engineering | 3 |
| CSCI 628 | Computational Techniques for Environmental Sustainability | 3 |
| GEOG 655 | Introduction to Geographic Information Systems | 4 |
| GEOG 656 | Advanced Geographic Information Systems | 3 |
| GEOG 665 | Remote Sensing of the Environment | 3 |
| GEOG 670 | Remote Sensing | 3 |
| GEOG 680 | Geographic Information Systems Pattern Analysis and Modeling | 3 |
| PAG 654 | Applications of Precision Agriculture | 3 |

Examinations

- 1. Qualifying Exam (Ph.D. only):** This exam consists of written and oral portions. The student will complete a written exam that emphasizes the application of materials presented in the core courses. The members of the genomics graduate program will submit these questions. The oral exam will be administered by the student's graduate committee and will focus on material beyond the core courses that are specific to the research of the student. Upon completion of the qualifying exam, the student will be accepted as a Ph.D. candidate.
- 2. Final Exam:** The final exam will be an oral defense of the student's research results. The student's graduate committee will administer the exam.

Samat Amat, Ph.D.

University of Calgary, Canada, 2019

Department: Microbiological Sciences

Research Interests: Animal Microbiome

Nonoy Bandillo, Ph.D.

University of Nebraska-Lincoln, 2016
Department: Plant Sciences
Research Interests: Pulse Breeding, Genetics

Samiran Banerjee, Ph.D.

University of Saskatchewan, 2012
Department: Microbiological Sciences
Research Interests: Agriculture Microbiomes; Plant-Microbe Interactions

Michael J. Christoffers, Ph.D.

University of Missouri-Columbia, 1998
Department: Plant Sciences
Research Interest: Weed Molecular Genetics

Anne Denton, Ph.D.

University of Mainz, 1996
Department: Computer Science
Research Interest: Data Mining, Bioinformatics

Justin D. Faris, Ph.D.

Kansas State University, 1999
Department: Plant Sciences
Research Interest: Wheat Molecular Genetics

Jason Fiedler, Ph.D.

The Scripps Research Institute, 2012
Department: Plant Sciences
Research Interests: Bioinformatics, High-throughput Genotyping, Small Grains Genetics

Paulo Flores, Ph.D.

Federal University of Rio Grande do Sul, 2008
Department: Agricultural and Biosystems Engineering
Research Interests: Precision Agriculture, Applications of UASs/Drones in Agriculture, UASs/Drone Imagery Analysis, GIS Applications for Precision Agriculture

Timothy Friesen, Ph.D.

North Dakota State University, 2001
Department: Plant Pathology
Research Interest: Host-Pathogen Interactions of Cereals

Barney Geddes, Ph.D.

University of Manitoba, Canada, 2014
Department: Microbiological Sciences
Research Interests: Plant Microbe Interactions

Upinder Gill, Ph.D.

Washington State University, 2012
Department: Plant Pathology
Research Interests: Host-Microbe Interactions, Genetics and Genomics of Plant Disease Resistance

Rich Horsley, Ph.D.

North Dakota State University, 1988
Department: Plant Sciences
Research Interests: Barley Breeding, Genetics

David P. Horvath, Ph.D.

Michigan State University, 1993
Department: Plant Sciences
Research Interest: Perennial Weed Physiology

Rick Jansen, Ph.D.

University of Minnesota, 2009
Department: Public Health

Research Interest: Molecular and Genomic Epidemiology

Xuehui Li, Ph.D

University of Georgia, 2009
Department: Plant Sciences
Research Interests: Statistical Genomics

Zhaohui Liu, Ph.D.

North Dakota State University, 2006
Department: Plant Pathology
Research Interest: Host-Parasite Interactions of Wheat

Phillip E. McClean, Ph.D.

Colorado State University, 1982
Department: Plant Sciences
Research Interest: Plant Molecular Genetics

Steven W. Meinhardt, Ph.D.

University of Illinois, Champaign-Urbana, 1984
Department: Biochemistry and Molecular Biology
Research Interest: Protein Structure/Function

Carrie Miranda, Ph.D.

University of Missouri, 2018
Department: Plant Sciences
Research Interests: Legume Molecular Genetics and Bioinformatics

Juan Osorno, Ph.D.

North Dakota State University, 2006
Department: Plant Sciences
Research Interests: Legume Genetics/Genomics and Synteny

Birgit Pruess, Ph.D.

Ruhr-Universität Bochum, 1991
Department: Veterinary and Microbiological Sciences
Research Interest: Microbial Physiology and Gene Regulation

Jack B. Rasmussen Ph.D.

Michigan State University, 1987
Department: Plant Pathology
Research Interest: Molecular Plant/Microbe Interactions

Katie Reindl, Ph.D.

North Dakota State University, 2006
Department: Biological Sciences
Research interest: Cancer cell biology

Saeed Salem, Ph.D.

Rensselaer Polytechnic Institute, 2009
Department: Computer Science
Research Interest: Bioinformatics Analysis of Biological Networks

Sarah Signor, Ph.D.

University of California-Davis, 2013
Department: Biological Sciences
Research Interests: Insect Evolutionary Genomics

Vasant A. Ubhaya, Ph.D.

University of California-Berkeley, 1971
Department: Computer Science and Operations Research
Research Interest: Algorithm Analysis, Operations Research

Changhui Yan, Ph.D.

Iowa State University, 2005
Department: Computer Science

Research interest: Computational Bioinformatics