# **Environmental and Conservation Sciences**

**Department Information** 

- Program Director. Craig Stockwell, Ph.D.
- Department Location: Biological Sciences, Stevens 119
- Department Phone: (701) 231-7717
- Department Web Site: www.ndsu.edu/ecs/ (http://www.ndsu.edu/ecs/)
- Application Deadline: International applications are due May 1 for fall semester and August 1 for spring semester. 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 79; IELTS 6.5; Duolingo 105

# **Program Description**

The graduate program leading to an M.S. or a Ph.D. in Environmental and Conservation Sciences (ECS) rests on an integrative curriculum and a multidisciplinary team approach. The program emphasizes the common ground shared by all sciences, and seeks to bridge methodological and philosophical boundaries that might hinder interdisciplinary communication and cooperation. The program offers three tracks: Environmental Science, Conservation Biology and Environmental Sciences. The Environmental Science track focuses on abiotic environmental issues, such as water, air, and land pollution. The Conservation Biology track focuses on biotic issues, such as the preservation of biodiversity and ecosystem function. The Environmental Social Sciences track emphasizes environmental economics and policy.

The interdisciplinary nature of this program is reflected by the participation of faculty from across the campus, including the Colleges of Agriculture, Food Systems, and Natural Resources; Arts, Humanities, and Sciences; Engineering; and Science and Mathematics.

# **Environmental Science**

Areas of Environmental Science, such as climate change, groundwater, hazardous waste, and water chemistry, require broad training across discipline lines for successful application. To better predict anthropogenic environmental impacts, the engineering, earth material, chemical, and biological data must be considered in an integrated manner.

# **Conservation Biology**

Conservation Biology focuses on the loss of regional and global biodiversity, but considers the human element as well in its approach to resource issues. As an example, conservation genomics, community ecology, invasion ecology, endangered species management, and human-wildlife conflicts are themes for ECS Graduate Students.

# **Environmental Social Sciences**

Environmental Social Sciences focuses on Natural Resources Economics; Environmental Economics as related to Environmental policy.

# **Admissions Requirements**

To be admitted to the Environmental and Conservation Sciences program, the applicant must meet the Graduate School requirements. Further, applicants are only considered after an ECS affiliated faculty member has agreed to to admit the student to her/his lab and make arrangements of stipend and research funding. Thus, applicants should contact ECS faculty members who share their research interests. https://www.ndsu.edu/ecs/index.php/people/faculty (https://www.ndsu.edu/ecs/index.php/people/faculty/)

# **Financial Assistance**

The applicant should contact a prospective mentor to identify sources of financial aid. Teaching and research assistantships may be available through funded research or participating departments. Applicants are considered on the basis of scholarship and potential to undertake advanced study and research. Contact the office of Financial Aid and Scholarships for information and applications regarding scholarships.

# **Program Administration**

The graduate program is administered by the ECS Steering Committee. The committee is composed of ECS graduate faculty members representing the participating colleges: Agriculture, Food Systems, and Natural Resources; Engineering; and Science and Mathematics. The committee also includes a student member which is nominated annually by the ECS Graduate Student Association.

The ECS Program Director presides over ECS Steering Committee meetings. The duties of the ECS Steering Committee include:

- 1. review of requests to join the ECS faculty and
- 2. program review and administration.

By the end of the second semester, the student and academic adviser will arrange for the appointment of a Graduate Supervisory Committee. For Ph.D. study, the Graduate Supervisory Committee will consist of at least four members of the NDSU graduate faculty. The committee must include the student's adviser, two additional ECS faculty members, and a Graduate School representative. One committee member must be from outside the student's home college.

For M.S. study, the Graduate Supervisory Committee will consist of at least three members of the NDSU graduate faculty and will include the student's adviser, an ECS faculty member and a faculty from outside the student's home college. The plan of study will be prepared by the student, in consultation with the major adviser, by the end of the first year in residence.

### Master of Science in Environmental and Conservation Sciences

The total credits will be not less than 30 graduate credits, with at least 16 credits of graduate courses numbered 601-689, 691; 700-789, 791 or 800-889, 891 plus the ECS graduate seminar for 1 credit, and research credits (798) not fewer than 6 nor more than 10 thesis credits. The didactic credits must include at least 1 ECS cross-disciplinary course; 1 ECS track course and UNIV 720 Scientific Integrity. All M.S. students must complete a thesis and pass a final examination as described in The Graduate School Policies section of the Graduate Bulletin. An overall GPA of 3.0 or better must be maintained.

### **Doctor of Philosophy in Environmental and Conservation Sciences**

Each Ph.D. student will complete at least 27 credits of didactic courses plus the ECS graduate seminar for 1 credit. The didactic courses will include: 3 core courses (9 credits), UNIV 720 Scientific Integrity, a minimum of 14-15 credits from a chosen track, and 2-3 credits of electives from another track or other NDSU courses numbered 601-689, 691; 700-789, 791 or 800-889, 891. The 15 track credits must be from at least 2 course categories. Two of the three courses must come from outside of the student's chosen track. Of the 27 didactic course credits, a total of 15 must be at the 700-800 level. A total of 90 credits are required.

For students entering the program with a Master's Degree or previous graduate coursework, up to 12 credits of previous graduate work can transfer and be counted toward the 27 credits. Such transferred credits must be approved by the student's supervisory committee, the program director and the Graduate Dean. The student must earn no fewer than 60 graduate credits at NDSU. Of these, no fewer than 15 credits must be at the 700 or 800 level (700-789, 791; 800-889 and 891).

**Program Requirements** 

| Code                               | Title  | Credits |
|------------------------------------|--|---------|
| Environmental Social Sciences Trac | k  |         |
| ECON 681                           | Natural Resource Economics   | 3       |
| ECS 770                            | Environmental Law and Policy                                       | 3       |
| HIST 634                           | Environmental History  | 3       |
| or HIST 710                        | Research Seminar in North American History                         |         |
| or HIST 780                        | Readings in World History  |         |
| NRM 631                            | National Environmental Policy Act & Environental Impact Assessment | 3       |
| NRM 702                            | Natural Resources Management Planning                              | 3       |
| SOC 631                            | Environmental Sociology  | 3       |
| Environmental Sciences Track       |  |         |
| CE 770                             | Hazardous Waste Site Remediation                                   | 3       |
| GEOL 614                           | Hydrogeology   | 3       |
| MICR 652                           | Microbial Ecology  | 3       |
| PH 720                             | Environmental Health   | 3       |
| <b>Conservation Biology Track</b>  |  |         |
| BOT 862                            |  | 3       |
| BOT 864                            |  | 3       |

| Z00 675                      | Conservation Biology                         | 3       |
|------------------------------|--|---------|
| Z00 875                      |  | 3       |
|                              | Advanced Conservation Biology                | 3       |
| CONSERVATIVE E               | BIOLOGY TRACK - TOTAL 18 CREDITS             |         |
| Code                         | Title  | Credits |
| Biodiversity                 |  |         |
| Select 3-9 credits of the fo | ollowing:                                    |         |
| BIOL 681                     | Wetland Science                              |         |
| BOT 717                      | Aquatic Vascular Plants                      |         |
| ENT 750                      | Systematic Entomology                        |         |
| RNG 716                      | Agrostology                                  |         |
| ZOO 650                      | Invertebrate Zoology                         |         |
| ZOO 652                      | Ichthyology                                  |         |
| ZOO 654                      | Herpetology                                  |         |
| ZOO 658                      | Mammalogy                                    |         |
| Ecology and Evolution        |  |         |
| Select 3-9 credits of the fo | ollowing:                                    |         |
| BIOL 850                     | Advanced Ecology                             |         |
| BIOL 859                     | Evolution                                    |         |
| BOT 660                      |  |         |
| BOT 862                      |  |         |
| BOT 864                      |  |         |
| ENT 765                      | Biological Control of Insects and Weeds      |         |
| ENT 770                      | Writing a Scientific Literature Review       |         |
| GEOL 640                     | Quaternary Biology                           |         |
| MICR 652                     | Microbial Ecology                            |         |
| PLSC 631                     | Intermediate Genetics                        |         |
| PLSC 751                     | Advanced Plant Genetics                      |         |
| PLSC 781                     | Quantitative Genetics                        |         |
| RNG 765                      | Analysis Of Ecosystems                       |         |
| SOIL 610                     | Soils and Land Use                           |         |
| SOIL 647                     | Microclimatology                             |         |
| ZOO 662                      | Physiological Ecology                        |         |
| ZOO 670                      | Limnology                                    |         |
| ZOO 850                      | Advanced Conservation Biology                |         |
| ZOO 860                      | Evolutionary Ecology                         |         |
| ZOO 870                      | Aquatic Community Ecology                    |         |
| Human Dimensions and M       | lanagement                                   |         |
| Select 3-9 credits of the fo |  |         |
| ANTH 662                     | Anthropology and the Environment             |         |
| COMM 783                     | Advanced Organizational Communication I      |         |
| CE 678                       | Water Quality Management                     |         |
| ECON 682                     | Environmental Economics                      |         |
| POLS 642                     | Global Policy Issues                         |         |
| POLS 650                     | Politics of the Developing Countries         |         |
| RNG 656                      | Ecological Restoration                       |         |
| ZOO 675                      | Conservation Biology                         |         |
| ZOO 676                      | Wildlife Ecology and Management              |         |
| ZOO 677                      | Wildlife and Fisheries Management Techniques |         |
| ZOO 850                      | Advanced Conservation Biology                |         |
| Research Tools               |  |         |
| Select 3-9 credits of the fo | allowing                                     |         |

Select 3-9 credits of the following:

| CE 677   | Applied Hydrology                                    |
|----------|--|
| GEOG 655 | Introduction to Geographic Information Systems       |
| GEOG 656 | Advanced Geographic Information Systems              |
| GEOL 660 | Biogeochemistry                                      |
| GEOL 760 | Advanced Biogeochemistry                             |
| PLSC 724 | Field Design I                                       |
| PSYC 640 | Experimental Methods                                 |
| RNG 650  | Range Plants   |
| SOC 701  | Quantitative Methods                                 |
| SOIL 784 | Advanced Soil Genesis, Morphology and Classification |
| STAT 661 | Applied Regression Models                            |
| STAT 662 | Introduction to Experimental Design                  |
| STAT 663 | Nonparametric Statistics                             |
| STAT 665 | Meta-Analysis Methods                                |
| STAT 670 | Statistical SAS Programming                          |
| STAT 730 | Biostatistics  |
| STAT 761 | Advanced Regression                                  |
| STAT 770 | Survival Analysis                                    |

# **ENVIRONMENTAL SCIENCES TRACK-TOTAL 17 CREDITS**

| Code                                 | Title  | Credits |
|--------------------------------------|--|---------|
| Water Sciences                       |  |         |
| Select 3-9 credits of the following: |  |         |
| ABEN 664                             | Resource Conservation and Irrigation Engineering |         |
| ABEN 765                             | Small Watershed Hydrology and Modeling           |         |
| CE 610                               | Water & Wastewater Engineering                   |         |
| CE 677                               | Applied Hydrology                                |         |
| CE 676                               | Watershed Modeling                               |         |
| CE 678                               | Water Quality Management                         |         |
| CE 679                               | Advanced Water and Wastewater Treatment          |         |
| CE 776                               | Ground Water and Seepage                         |         |
| CE 779                               | Watershed Water Quality Modeling                 |         |
| CE 796                               | Special Topics                                   |         |
| GEOL 640                             | Quaternary Biology                               |         |
| ZOO 670                              | Limnology  |         |
| Soil and Solid Waste                 |  |         |
| Select 3-9 credits of the following: |  |         |
| ABEN 696                             | Special Topics                                   |         |
| CE 672                               | Solid and Hazardous Waste Management             |         |
| CE 770                               | Hazardous Waste Site Remediation                 |         |
| SOIL 610                             | Soils and Land Use                               |         |
| SOIL 633                             | Soil Ecohydrology and Physics                    |         |
| SOIL 733                             | Advanced Soil Nutrient Cycling                   |         |
| Environmental Management             |  |         |
| Select 3-9 credits of the following: |  |         |
| CE 672                               | Solid and Hazardous Waste Management             |         |
| CE 678                               | Water Quality Management                         |         |
| COMM 783                             | Advanced Organizational Communication I          |         |
| RNG 656                              | Ecological Restoration                           |         |
| ZOO 675                              | Conservation Biology                             |         |
| ZOO 676                              | Wildlife Ecology and Management                  |         |
| ZOO 677                              | Wildlife and Fisheries Management Techniques     |         |

#### Research Tools

| Select 3-9 credits of the following: |  |
|--------------------------------------|--|
| ABEN 682                             | Instrumentation & Measurements                 |
| ABEN 696                             | Special Topics                                 |
| CE 677                               | Applied Hydrology                              |
| GEOG 655                             | Introduction to Geographic Information Systems |
| GEOG 656                             | Advanced Geographic Information Systems        |
| GEOL 660                             | Biogeochemistry                                |
| GEOL 760                             | Advanced Biogeochemistry                       |
| IME 660                              | Evaluation of Engineering Data                 |
| RNG 650                              | Range Plants                                   |
| STAT 662                             | Introduction to Experimental Design            |
| STAT 725                             | Applied Statistics                             |
| STAT 761                             | Advanced Regression                            |

# **ENVIRONMENTAL AND SOCIAL SCIENCES TRACK-TOTAL 17 CREDITS**

| Social Science Theory                |  |  |
|--------------------------------------|--|--|
| Select 3-9 credits of the following: |  |  |
| -                                    | Advanced Microeconomics  |  |
|                                      | Development of Anthropological Theory                              |  |
|                                      |  |  |
|                                      | Communication Theory   |  |
|                                      | Game Theory and Strategy   |  |
|                                      | Theoretical Perspectives to the Study of Political Science         |  |
|                                      | Development Of Social Theory                                       |  |
|                                      | Social Theory  |  |
| Cultural and Behavioral Aspects      |  |  |
| Select 3-9 credits of the following: |  |  |
|                                      | Applied Risk Analysis I  |  |
| ANTH 662                             | Anthropology and the Environment                                   |  |
| ANTH 664                             | Disaster and Culture   |  |
| ECON 656                             | History of Economic Thought  |  |
| ECON 681                             | Natural Resource Economics   |  |
| ECON 682                             | Environmental Economics  |  |
| HIST 634                             | Environmental History  |  |
| POLS 642                             | Global Policy Issues   |  |
| POLS 653                             | Environmental Policy and Politics                                  |  |
| SOC 631                              | Environmental Sociology  |  |
| SOC 639                              | Social Change  |  |
| SOC 643                              | International Disasters  |  |
| Management Techniques                |  |  |
| Select 3-9 credits of the following: |  |  |
| COMM 783                             | Advanced Organizational Communication I                            |  |
|                                      | Biogeochemistry  |  |
|                                      | National Environmental Policy Act & Environental Impact Assessment |  |
| NRM 632                              | Environmental Impact Statement                                     |  |
| NRM 653                              | Rangeland Resources Watershed Management                           |  |
|                                      | Terrestrial Resources Management                                   |  |
|                                      | Natural Resources Management Planning                              |  |
|                                      | Wetland Resources Management                                       |  |
|                                      | Ecological Restoration   |  |
| SOC 604                              | Community Assessment   |  |

| TL 755                               | City Logistics                                     |
|--------------------------------------|--|
| ZOO 675                              | Conservation Biology                               |
| ZOO 676                              | Wildlife Ecology and Management                    |
| ZOO 850                              | Advanced Conservation Biology                      |
| Research Tools                       |  |
| Select 3-9 credits of the following: |  |
| AGEC 701                             | Research Philosophy                                |
| AGEC 739                             | Analytical Methods for Applied Economics           |
| BIOL 850                             | Advanced Ecology                                   |
| COMM 700                             | Research Methods in Communication                  |
| COMM 701                             | Advanced Research Methods in Communication I       |
| COMM 704                             | Qualitative Research Methods in Communication      |
| COMM 707                             | Quantitative Research Methods in Communication     |
| ECON 610                             | Econometrics                                       |
| ECON 710                             | Advanced Econometrics                              |
| EMGT 614                             | Spatial Analysis in Emergency Management           |
| ENGL 656                             | Literacy, Culture and Identity                     |
| ENGL 758                             | Topics in Rhetoric, Writing, and Culture           |
| GEOG 655                             | Introduction to Geographic Information Systems     |
| GEOG 656                             | Advanced Geographic Information Systems            |
| PSYC 640                             | Experimental Methods                               |
| RNG 652                              | Managing Natural and Rangeland Resources using GIS |
| RNG 765                              | Analysis Of Ecosystems                             |
| SOC 700                              | Qualitative Methods                                |
| SOC 701                              | Quantitative Methods                               |
| STAT 660                             | Applied Survey Sampling                            |
| STAT 661                             | Applied Regression Models                          |
| STAT 662                             | Introduction to Experimental Design                |
| STAT 663                             | Nonparametric Statistics                           |
| STAT 665                             | Meta-Analysis Methods                              |
| STAT 670                             | Statistical SAS Programming                        |
| STAT 725                             | Applied Statistics                                 |
| STAT 726                             | Applied Regression and Analysis of Variance        |
| STAT 730                             | Biostatistics                                      |
| STAT 761                             | Advanced Regression                                |
| STAT 770                             | Survival Analysis                                  |
|                                      |  |

### **Preliminary Examinations for Doctoral Students**

The written preliminary examination will cover the core areas for ECS and each of the core topic areas for the appropriate track. The preliminary examination will typically be taken in the middle of the third year. The written exam must be passed before the comprehensive oral examination can be scheduled.

The comprehensive oral examination will be taken no later than the end of the third year in residence. The examination will cover the topic areas for the appropriate track.

### **Dissertation Research**

A proposal describing research suitable for preparation of a dissertation in Environmental and Conservation Sciences will be prepared in the format of a NSF Dissertation Improvement Grant. Alternative formats must be agreed to by the Graduate Supervisory Committee. The proposal will be submitted to the student's Graduate Supervisory Committee for review and approval. The dissertation must show originality and demonstrate the student's capacity for independent research.

Bakr Aly Ahmed, Ph.D. Virginia Tech, 2001 Research Interests: Built Environment; Sustainable Architecture; Construction Technology; Urban Sustainability

#### Laura Aldrich-Wolfe, Ph.D.

Cornell University, 2006 Research Interests: Restoration Ecology; Conservation Biology; Fungal Community Ecology

F. Adnan Akyuz, Ph.D. University of Missouri-Columbia, 1994 Research Interests: Applied Climatology and Microclimatology/Climate Based Agriculture

Allan C. Ashworth, Ph.D. University of Birmingham, 1969 Research Interests: Quaternary Paleoecology, Paleoclimatology

#### Achintya Bezbaruah, Ph.D.

University of Nebraska-Lincoln, 2002 Research Interests: Nanomaterials for Pollution Control, Recalcitrant and Micro Pollutants, Contaminant Fate and Transport, Small Community Water and Wastewater Treatment, Environmental Sensors, Environmental Management

Julia Bowsher, Ph.D. Duke University, 2007 Research Interests: Evolutionary and Developmental Biology

**Igathinathane Cannayen, Ph.D.** Indian Institute of Technology, 1997 Research Interests: Biomass Harvest, Storage, Collection and Pre-Processing

Frank X.M. Casey, Ph.D. Iowa State University, 2000 Research Interests: Field and Laboratory Studies of Water Flow and Chemical Transport Processes

Amitava Chatterjee, Ph.D. University of Wyoming, 2007 Research Area/Activity: Soil Fertility Management, Greenhouse Gas Emissions

Xuefeng (Michael) Chu, Ph. D.

University of California, Davis, 2002 Research Interests: Watershed Hydrologic and Environmental Modeling, Overland Flow and Infiltration, Integrated Modeling of Flow and Contaminant Transport

Larry Cihacek, Ph.D. Iowa State University, 1979 Research Interests: Carbon Sequestration in Soils, Soil Physical Properties, Soil Management for Waste Disposal

Dennis Cooley, Ph.D. University of Rochester, 1995 Research Interests: Ethics of Science

#### Aaron Daigh, Ph.D.

Iowa State University, 2013 Research Interests: Soil Physics, Transport in Soils, Soil Residue and Water Management, Crop Rotations, and Nutrient/Agrochemical/Industrial Byproduct Soil Amendment Impacts on Soil Physical Properties

Stephanie Day, Ph.D.

University of Minnesota, 2012 Research Interests: Fluvial Geomorphology, Slope Stability, Geospatial Sciences

Edward (Shawn) DeKeyser, Ph.D.

North Dakota State University, 2000 Research Interests: Wetland Ecology, Wetland Assessment and Monitoring, Invasive Species Ecology and Management, Native Prairie Restoration

Anne Denton, Ph.D.

University of Mainz, 1996 Research Interests: Data Mining, Bioinformatics, Scientific Informatics, Educational Technology, Model Building, Databases

Thomas M. DeSutter, Ph.D.

Kansas State University, 2004

Research Interest: Trace Gas Fluxes, Inorganic Soil Chemistry, Soil Environmental Conditions

#### Ned Dochtermann, Ph.D.

University of Nevada, Reno, 2009 Research Interests: Ecological and Evolutionary Causes and Consequences of Phenotypic Variation

#### Paulo Flores, Ph.D.

Federal University of Rio Grande do Sul, 2008 Research Interests: Precision Agriculture, Unmanned Aerial Systems; Imagery analyses

#### Caley Gasch, Ph.D.

University of Wyoming, 2013 Research Interests: Soil ecology; Restoration; Conservation

#### Erin Gillam, Ph.D.

University of Tennessee, 2007

Research Interests: Behavioral ecology of bats, ecological and evolutionary basis of behavior in all animal groups, behavioral, ecological, and evolutionary factors influence the structure of animal communication signals and wildlife ecology and conservation.

#### Kendra Greenlee, Ph.D.

Arizona State University-Tempe, 2004 Research interests: Environmental and respiratory physiology of insects; insect immunology.

#### Timothy Greives, Ph.D.

Indiana University, 2009 Research Interests: Physiology and Behavior of Animals in Response to Environmental Signals

#### Ademola (Demmy) Hammed, Ph.D.

International Islamic University, 2014 Research Interests: Biotechnology Engineering; Agricultural Bioproducts

#### Jason Harmon, Ph.D.

University of Minnesota, 2003 Research Interests: Environmental change; ecosystem services; population and community ecology

#### Mark Harvey, Ph.D.

University of Wyoming, 1986 Research Interests: American West, Environmental History, Public History

#### Harlene Hatterman-Valenti, Ph.D.

Iowa state University, 1993 Research Interests: High-Value Crop Production

#### Robert R. Hearne, Ph.D.

University of Minnesota, 1995 Research Interests: Economic Analysis of Emerging Environmental and Resource Issues in the Northern Great Plains

#### Britt Heidinger, Ph.D.

Indiana University, 2007 Research Interests: Physiological Ecology, Senescence, Stress Physiology

#### David Hopkins, Ph.D.

North Dakota State University, 1997 Research Interests: Soil Formation and Chemistry

#### Tom Isern, Ph.D.

Oklahoma State University, 1977 Research Interests: History of Agriculture, History of Great Plains

#### Sivaguru Jayaraman, Ph.D.

Tulane University, 2003 Research Interests: Photocatalysis, Photochemistry, Green Chemistry

#### Xinhua Jia, Ph.D. University of Arizona, 2004

Research Interests: Evapotranspiration, Subsurface drainage and Water quality

#### Dinesh Katti, Ph.D.

#### University of Arizona, 1991

Research Interests: Geotechnical Engineering, Constitutive Modeling of Geologic Materials, Expansive Soils, Multiscale Modeling, Steered Molecular Dynamics, Computational Mechanics, Nanocomposite, and Bio-nanocomposites. Computational Biophysics

#### Page Klug, Ph.D.

Kansas State University, 2009 Research Interests:Human-wildlife Interactions; Ecology; Birds; Snakes

#### Ben Laabs, Ph.D.

University of Wisconsin, 1999 Research Interests: Quaternary Geology; Glacial Geology; Cosmogenic Nuclides; Paleoclimate; Surface Processes

#### Trung Le, Ph.D.

University of Minnesota, 2011 Research Interests: Hydraulics; Fluid Mechanics; Numerical Methods For Fluid-Structure Interaction

#### Kenneth E. Lepper, Ph.D.

Oklahoma State University, 2001 Research Interests: Quaternary Geology and Age Dating

#### Wei Lin, Ph.D.

State University of New York at Buffalo, 1992 Research Interests: Water and Wastewater Treatment, Hazardous Waste Management

#### Zhulu Lin, Ph.D.

#### University of Georgia, 2003

Research Interests: Surface and Subsurface Hydrology and Modeling, Soil and Water Resources Management, Environmental Systems Analysis, Risk Identifications and Assessment, Geostatistics and Spatial Statistics

#### Guodong Liu, Ph.D.

Hunan University, 2001 Research Interests: Synthesis of Novel Nanomaterials, Biosensors, Bioassays

#### John McEvoy, Ph.D.

University of Ulster Northern Ireland, 2002 Research Interests: Cryptosporidium Virulence Factors and Mechanisms of Pathogenesis

#### Jennifer Momsen, Ph.D.

Rutgers University, 2007 Research Interests: Biology Education, Systems Thinking in Introductory Biology, Visualization, Assessing the Cognitive Level of STEM Courses

#### Bakr Mourad Aly Ahmed, Ph.D.

Virginia Tech., 2001 Research Interests: Sustainability Indicators and Implementation, Carrying Capacity Measurements, Coastal Development, Built Environment and Natural Resources Conservation

#### Jack Norland, Ph.D.

North Dakota State University, 2008 Research Interests: Restoration Ecology, Application of Remote Sensing to Natural Resource Management, Study of Natural Resources Management Problems in a Socio-ecological Setting

#### Nurun Nahar, Ph.D.

North Dakota State University, 2017 Research Interests: Biomass Conversion; Bioprocess Engineering; Biofuels

Peter Oduor, Ph.D. University of Missouri - Rolla, 2004 Research Interests: Geographic Information Systems, Groundwater Flow Modeling, Groundwater Contamination

#### Marinus Otte, Ph.D.

Vrije Universiteit, 1991 Research Interests: Wetland ecology, Biogeochemistry, Ecophysiology and Ecotoxicology

#### Birgit Pruess, Ph.D.

Ruhr- Universitat Bochum, 1991 Research Interest: Microbial Physiology and Gene Regulation

#### Scott Pryor, Ph.D.

Cornell University, 2005 Research Interests: Biofuel Production from Cellulosic Feedstocks, Biobased Chemicals and Materials, Bioprocess Engineering, Process Optimization, Solid State and Liquid Fermentation Systems

Shafiqur Rahman, Ph.D. University of Manitoba, 2004 Research Interests: Animal Waste Management, Biosolids Management, Air Quality, Water Quality, Composting

David A. Rider, Ph.D. Louisiana State University, 1988 Research Interests: Insect Systematics, Biodiversity

**David Ripplinger, Ph.D.** North Dakota State University, 2012 Research Interests: Energy Transport; Agricultural Economics

#### David C. Roberts, Ph.D.

Oklahoma State University, 2009 Research Interests: Evaluation and Design of Economically Efficient Tools and Policies for Pollution Control, Economic Valuation of Environmental and Ecological Attributes Through Revealed and Stated Preference Methods, Valuation of Environmental Risk, and Low-Impact and Precision Agriculture

Bernhardt Saini-Eidukat, Ph.D. University of Minnesota, 1991 Research Interests: Environmental Geochemistry, Igneous Petrology, Economic Geology

Kalidas Shetty, Ph.D. University of Idaho, 1989

Research Interests: Plant Science; Agriculture; Food Science; Human Nutrition; Public Health

Halis Simsek, Ph.D. North Dakota State University, 2012 Research Interests: Bioenvironmental Engineering

Senay Simsek, Ph.D. North Dakota State University, 2012 Research Interests: Bioenvironmental Engineering; Carbohydrate Chemistry; Cereal Science; Food Science And Technology

**Todd Sirotiak, Ph.D.** Iowa State University Research Interests: Construction Process Improvement; Sustainability

Matt Smith, Ph.D. University Of Arkansas, 2012 Research Interests: Morphology; Physiological Ecology

**Dean D. Steele, Ph.D.** University of Minnesota, 1991 Research Interests: Irrigation and Environmental Engineering

**Craig A. Stockwell, Ph.D.** University of Nevada, 1995 Research Interests: Conservation Biology, Evolutionary Ecology of Native Fishes, Human-Wildlife Interactions

Linda Tackett, Ph.D. University of Southern California, 2014 Research Interests: Norian (and Mesozoic, generally) Paleoecological, Taxonomic, and Environmental Dynamics

**Steve E. Travers, Ph.D.** University of California, 1998

#### Research Interests: Plant Evolutionary Ecology

#### Cheryl Wachenheim, Ph.D.

Michigan State University, 1994

Research Interests: Eliciting Perceptions and Valuations from Consumers, Firms, Students and Other Stakeholders and Decision Makers

#### Alexander Wagner, Ph.D.

Oxford University, 1997 Research Interests: Lattice Boltzmann, Spinodal Decomposition, Viscoelasticity, Drop Deformation and Break-up in a Shear Flow, Wetting, Nonequilibrium Thermodynamics, Complex systems

#### Scott Wood, Ph.D.

Princeton University, 1985 Research Interests: Environmental Geochemistry, Radioactive Waste Disposal

#### Brian D. Wisenden, Ph.D.

University of Western Ontario, 1993 Research interests: Behavioral Ecology of Fishes, Chemical Ecology of Predator-Prey Interactions, Parental Care and Mating Systems