# Microbiology Doctorate

Department Information

- **Department Web Site:**
  ndsu.edu/microbiology/ (http://ndsu.edu/microbiology/)
- **Application Deadline:**
  January 15 for fall
- **Credential Offered:**
  Ph.D.
- **English Proficiency Requirements:**
  TOEFL iBT 81 (Speaking 23, Writing 21); IELTS 7 (Speaking 6, Writing 6); Duolingo 115
- **Program Overview:**
  ndsu.edu/programs/graduate/microbiology (http://ndsu.edu/programs/graduate/microbiology/)

## Apply Now (https://ndsugrad.my.site.com/Application/TX_SiteLogin/?startURL=/Application/TargetX_Portal__PB)

The Ph.D. program in Microbiology encompasses many subdisciplines, including microbial ecology and evolution, virology, vaccine development, food microbiology, soil microbiology, plant-microbe and animal-microbe interactions, microbiome research, biofilm research, immunology, host-pathogen interactions, and discipline-based education research. The program trains students in the foundation of knowledge, process of inquiry, and philosophy of microbiology. It breaks with traditional programs by focusing training on seven well-defined learning outcomes that can be attained with or without supporting coursework. This includes outcomes for professional, ethical and civic development  Under this system, we expect that a graduating doctoral student will be able to:

1. Demonstrate professional and ethical behavior consistent with the expectations of the discipline.
2. Utilize and apply discipline appropriate knowledge, concepts and theoretical frameworks.
3. Conduct scholarly inquiry relevant to societal challenges and the field of study.
4. Demonstrate proficiency with a variety of classical and modern techniques by collecting and documenting reproducible and publish quality data through the completion of experiments.
5. Critically analyze, write high-quality technical documents, and communicate scientific content and research results to diverse audiences. Contribute significantly (first-authorship) to scientific journal articles.
6. Initiate and manage collaboration in ways that enhance the output of the project.
7. Display professional skills in personal effectiveness to be competitive in the job market.
8. Engage and initiate activities that display civic responsibility, citizenship and inclusiveness.

Required coursework in the typical program (five years) is 8-14 credit hours, with the remaining 76-82 credits customizable to the student's training needs.  In the absence of didactic course requirements, the program holds students accountable for year-over-year progress toward the learning goals via annual assessments of student progress by the mentor and research advisory committee and a qualifying exam to assess microbiological knowledge.

| Code | Title | Credits |
|---|---|---|
| MICR 701 | Introduction to Graduate Research | 1-3 |
| UNIV 720 | | 1 |
| MICR 790 | Graduate Seminar [1 credit per year] | 3-5 |
| MICR 893 | Individual Study/Tutorial (Annual Portfolio Review) [1 credit per year] | 3-5 |
| MICR 899 | Doctoral Dissertation | >30 |

## Admission and Application Requirements

Graduate School admission and application requirements are found on the Admission Information (http://catalog.ndsu.edu/graduate/admission-information/) page. In addition to these requirements, the following are required:

- Evidence of a strong academic record in the biological sciences.
- The statement of purpose should address each of the following:
  - The degree you are seeking (Comprehensive study-based M.S., Thesis-based M.S., or PhD).
  - An explanation of how obtaining a graduate degree in our program fits your career goals.

- A description of the qualities you possess that will contribute to your success.
- A description of any relevant experiences you have had. If you have had research experience, it is important to include a letter of recommendation from your research adviser. (Particularly important for Thesis-based M.S. and Ph.D. applicants.
- A list of the areas of research in the department that interest you and identifying specific researchers is helpful. (Particularly important for Thesis-based M.S. and Ph.D. applicants)
- The Department of Microbiological Sciences and North Dakota State University value and support individuals with diverse backgrounds, and experiences. Valuing our differences opens learning opportunities beyond the traditional classroom, resulting in a more rewarding education, research, and enhanced perspectives. Please write a statement that identifies the distinctive characteristics and/or life experiences, such as successfully overcoming obstacles or hardships, that you would bring to your graduate studies.

## Admission Standards

Applicants are evaluated in each of five dimensions that are expected to impact performance as a graduate student:

1. Academic preparation
   a. Prior courses/degrees
   b. Communication
   c. English Proficiency - if applicable
2. Scholarly Potential
   a. Motivation for graduate study
   b. Prior Experience
3. Socio-Emotional Competencies
   a. Self-Appraisal
   b. Long term Goals/Accomplishments
4. Alignment with Program
   a. Alignment with Faculty research
   b. Alignment with program training
5. Alignment with Diversity Values of the department

Please see the Microbiology website (https://www.ndsu.edu/agriculture/academics/academic-units/microbiological-sciences/) for more details on the admissions process and Frequently Asked Questions.