Scientific Computing (Ph.D.)

Gain the vital expertise to lead and innovate through invaluable “practice experience” in a high-performance environment.

Scientists and engineers in every industry rely on high-performance technology and large data sets, requiring experts that can help harness the latest sophisticated computing power to solve real-world problems. Through critical and logical thinking, you’ll gain the invaluable knowledge and experience to become highly proficient in the use of today’s leading computing platforms and techniques.

Program Snapshot

- **Program type**: Doctoral Degree
- **Format**: On-campus
- **Est. time to complete**: 4-5 years
- **Credit hours**: 84-102 (approved bachelor's degree); 50-60 (approved master's degree)

Why Study Scientific Computing at UND?

Computing technologies continue to impact every corner of the world at a hyper-accelerated rate. At the forefront are scientists and engineers that rely on computer modeling and simulation, making those with a high proficiency in scientific computing skills invaluable.

With this graduate program, you’ll:

- Get essential “practice experience” to help solve real-world problems and challenges through computational technology
- Develop the knowledge and skills that will prepare you to lead or support research in any technical career that relies on scientific computation.
- Develop your logic and critical-thinking skills to help solve today’s most pressing scientific and engineering challenges.
- Choose from computation clusters focused on specialized computing system or methods, and application clusters for exposure to specific scientific disciplines.

Learn to Lead

UND provides a variety of options to develop your research and find your path to success.

Application Deadlines

- **Fall**: Aug. 1
- **Spring**: Dec. 1

Scientific Computing Ph.D. at UND

- Work with practitioners in a variety of disciplines served by scientific computing.
- Gain the expertise need to follow a career path in many dynamic branches of computer science such as bioinformatics, atmospheric science, software design, and more.
Gain access to on-campus computer power: two computer labs, a set of diverse servers and a high-performance computing (HPC) system. The supercomputer at UND runs on the HPE Apollo 6500 Gen10 system, purpose-built for HPC and a leading platform for deep learning.

Benefit from strong departmental proficiencies in artificial intelligence, compiler design, database, networks, operating systems, graphics, simulation, software engineering, and theoretical computer science.

Scientific Computing Careers

19%  Job growth outlook for Computer and Information Scientists, much faster than average*
90%  Job placement rates are consistently above that level for UND computer science program graduates

*U.S. Bureau of Labor Statistics

Graduates of this program often go on to successful careers as software engineers and developers, computational scientists, data science engineers, research scientists at technology companies and universities.

Because technology systems are so essential today in many areas of science, technology and research, UND graduates can expect career opportunities across a range of industries. A small sampling of top industries needing scientific computing skills include:

- High tech (hardware)
- Software engineering
- Scientific and medical research (private and university-level)
- Engineering and science
- Renewable energy
- Communications
- Aerospace