Reliability engineering is highly interdisciplinary, drawing on knowledge from multiple engineering fields. Looking for a graduate program in risk analysis, I found CRR, and the faculty, research, and reputation made Maryland the clear choice. Andres Ruiz-Tagle Ph.D. Spring '23

> Engineers should know that the time and place for reliability engineering is always. Madison West M.S. Fall '21

GRADUATE POSITIONS

- Director of Reliability
- Machine Learning and Data Analyst
- Manufacturing Plant Engineer
- Quality Engineer
- Risk and Reliability Engineer
- Risk Analyst
- Safety Engineer
- Safety Instrumented Test Engineer
- Software Engineer
- Systems Engineer

TOP GRADUATE EMPLOYERS

- Amazon
- Applied Materials
- Apple
- Chevron
- FM Global
- General Electric
- Google
- Lockheed Martin
- NASA
- U.S. Department of Defense
- U.S. Department of Energy
- U.S. Nuclear Regulatory Commission

The A. James Clark School of Engineering is a catalyst for high-quality research, innovation, and learning, providing students the resources to be engaged problem-solvers and systems thinkers. Pursue a degree tailored to your career interests through the top-ranking Reliability Engineering program in the U.S.



CENTER FOR ISK AND RELIABILITY

FOR MORE INFORMATION about M.S and Ph.D.

We welcome your interest. For complete information, including course descriptions, research labs, and faculty expertise please contact us.

website: crr.umd.edu admissions: megrad@umd.edu general inquiries: crr@umd.edu

FOR MORE INFORMATION about M.Eng. and Certificate

For admissions information please contact: mage@umd.edu



GRADUATE ENGINEERING DEGREES IN RELIABILITY **ENGINEERING**

Gain the tools to assess and help ensure the reliability, safety, and quality of products and systems throughout their life cycles.

Research Laboratories

 Systems Risk and Reliability Analysis Laboratory (SyRRA) focuses on
computational algorithms for addressing risk and reliability problems in complex
systems, with main applications in energy and infastructure, including hydrogen
fueling stations, vehicles, pipelines, and nuclear power plants.
• Risk-Informed Solutions in Engineering Laboratory (RISE) conducts research
related to probabilistic assessment of natural hazards and associated risks as well as
a variety of topics involving the applications of statistics and machine learning in engineering.
• Risk and Decision Analysis Laboratory focuses on risk analysis and decision analysis
for complex industrial systems, including nuclear power plants and electric power systems.
 Probabilistic Physics of Failure (PPoF) and Fracture Laboratory conducts
accelerated life testing for many failure mechanisms which enables probabilistic
physics of failure model developments.
Cybersecurity Quantification Laboratory conducts computational and empirical
studies using security data collected in-house and across the world. The lab focuses
on understanding incidents, intrusion alerts, network flows and malicious activity
towards/from target computers.
Diverse opportunties at these laboratories and more prepare students for careers in
reliability engineering and risk analysis.
Funding
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The Reliability Engineering program provides funding for on campus graduate students
who are making good progress toward their degree. This funding takes the form of:

- Teaching Assistantships (TAs)
- Research Assistantships (RAs)
 - Fellowships and Scholarships
- There are also external funding opportunities available, including University of
- Maryland and external fellowships. ENRE students have won prestigious external awards, including DOE and DOD fellowships.

RELIABILITY ENGINEERING AT MARYLAND

The A. James Clark School of Engineering's graduate Reliability Engineering Program is the largest and most comprehensive program in the field of reliability and risk analysis of engineered systems and processes. The program is offered by the University of Maryland's Center for Risk and Reliability (CRR). Created in 1985 as the umbrella organization for the risk and reliability research and development activities at Maryland, CRR includes numerous research laboratories with extensive state-of-the-art equipment. Research covers a wide range of subjects involving systems and processes, including predictive reliability analysis; probabilistic and quantitative risk analysis; advanced probabilistic inference methods; system-level health monitoring and prognostics; human reliability analysis methods; and machine learning. The center is housed administratively in the Department of Mechanical Engineering, which is ranked in the top 20 nationally by U.S. News & World Report, and admits students from all engineering disciplines and physical and mathematical sciences.

WHY RELIABILITY ENGINEERING?

Increasing numbers of organizations are seeking risk and reliability assessments of complex systems as technologies continue to expand. Designed specifically for working engineers and technical professionals, this specialized graduate program provides students with the tools to identify and manage risks that can affect asset reliability and business operations with a focus on risk management, loss elimination, and lifecycle asset management. In the Reliability Engineering Program students learn to identify, manage, and eliminate product and system failures using advanced risk and reliability practices and data analysis techniques. Coursework in reliability engineering prepares students to improve performance and ensure safety in the energy, manufacturing, infrastructure, telecommunications, aerospace, and defense sectors. The courses in reliability engineering allow students to focus on a concentrated area of study. All programs prepare engineers to directly meet today's risk and reliability challenges in government, research, and industry.

POPULAR COURSES

- Fundamentals of Failure Mechanisms
- Principles of Reliability Analysis
- Mathematical Techniques of Reliability
- Collection and Analysis of Reliability Data
- Probabilistic Physics of Failure and Accelerated Testing
- Human Reliability Analysis
- Reliability Engineering Management
- Machine Learning Algorithms for Reliability Engineering
- Probabilistic Risk Assessment
- Information Security

Take the next step

Are you ready to take the next step in your engineering career? Explore program options, application requirements, and deadlines.

TO LEARN MORE, VISIT

ADMISSION REQUIREMENTS

- A bachelor's degree in engineering, computer science, physics, applied mathematics, physical sciences, or a related field from an accredited institution
- GPA of 3.0 or better

- Three letters of recommendation
- Transcripts
- For international applicants: English proficiency score
- GRE scores are considered but not required

DEGREE REQUIREMENTS

RESEARCH PROGRAMS (ENRE)

Research laboratory access

• Online or on campus

DOCTOR OF PHILOSOPHY

MASTER OF SCIENCE

• Thesis or scholarly paper

12 courses

Dissertation

8-10 courses

PROFESSIONAL PROGRAMS (MAGE)

- Online or on campus
 - Part-time and flexible
 - MASTER OF ENGINEERING
 - 10 courses
 - Asynchronous courses

GRADUATE CERTIFICATE

- 4 courses
- Can be completed in 1 year

APPLICATION DEADLINES

Typical deadlines are below, but vary by year. Please check the website to confirm the dates for the semester in which you plan to apply.

ON CAMPUS

FALL

Priority: December 31 Final (International): March 1 Final (Domestic): July 31

SPRING

International: September 24 Domestic: December 15

ONLINE

FALL Priority: December 31 Final: July 31

<u>SPRING</u> December 15

