APPLIED MATHEMATICS AND DATA SCIENCE

Asian University for Women

Shape the Future with Math, Data, and Global Vision

The Applied Mathematics and Data Science (AMDS) program at the Asian University for Women (AUW) is designed to empower the next generation of women leaders with a unique blend of interdisciplinary knowledge, analytical rigor, and computational expertise. Through a globally aligned curriculum, students engage with foundational and advanced topics in mathematics, statistics, and data science to address complex problems across various domains, including health, finance, climate science, artificial intelligence, and social policy.

The program emphasizes both theoretical understanding and practical application. Students develop strong skills in mathematical modelling, algorithmic thinking, machine learning, and data visualization. They also gain experience working with real-world datasets and participating in research projects, seminars, and internships with industry partners and global collaborators.

With a commitment to ethical data use, social impact, and inclusive innovation, the AMDS program nurtures critical thinking, problem-solving, and leadership abilities. Graduates are well-prepared for diverse careers in technology, analytics, academia, and public policy, as well as competitive placements in top international graduate schools.

WHY CHOOSE THIS PROGRAM?

- **Interdisciplinary Curriculum**: Merges mathematics, statistics, and computing for applications in AI, public health, finance, and more.
- **Global Collaboration**: Designed with input from international experts and faculty.
- **Hands-on Learning**: Training in programming (Python, R, MATLAB), statistical inference, modeling, and visualization.

- **Distinguished Faculty:** Learn from internationally trained researchers committed to mentorship and academic excellence.
- **Research Exposure**: Real-world projects, seminars, thesis supervision that will open the high-quality article publishing, and faculty-guided innovation.
- **Women in STEM**: Leadership opportunities and strong graduate school placements.

WHAT YOU WILL LEARN IN AMDS PROGRAM

Mathematics Fundamentals
1. Linear Algebra
2. Calculus II (Multivariate Calculus)
3. Real Analysis
4. Sampling Distribution and Regression Analysis
5. Numerical Analysis I
6. Discrete Mathematics
7. Introduction to Functional Analysis

Applied Mathematics Core
8. Ordinary Differential Equations with Modeling
9. Optimization Techniques
10. Partial Differential and Integral Equations
11. Mathematical Modeling in Biology
12. Numerical Analysis II: Numerical Methods for Differential Equations

Data Science Core
13. Python and R for Data Science (+ Lab)
14. Deep Learning and Neural Networks
15. Introduction to Machine Learning
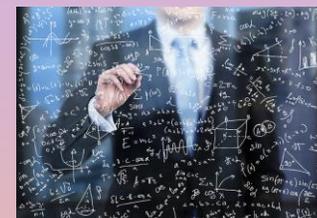16. Big Data Analytics
17. Data Structures and Algorithms

Major Electives
1. Mathematical Methods
2. Complex Variables and Fourier Analysis
3. Statistical Inference
4. Hydrodynamics and Fluid Dynamics
5. Introduction to Mathematical Finance
6. Introduction to High Performance Computing
7. Multivariate Statistics

Thesis (UG4, 2 trimesters)

Program Structure
- Duration: 4 Years (Full-time)
- Total Credits: 184

AMDS

- Programming
- AI Models
- Machine Learning
- Deep Learning
- Graphics
- Simulations
- CryptoGraphy
- Blockchain
- Data Science
- Signal Processing
- Robotics
- Game Engines
- Tech Stack

Careers OF AMDS Graduates
Where Numbers Meet Opportunities

APPLIED MATH & DATA SCIENCE DEGREE

ACADEMIA & RESEARCH
ACADEMIA
- PhD Programs
- Research Scientist
- Quantitative Analyst
- Computational Biologist
- Biostatistician
- Scientific Programmer
- Professor
- Academic Advisor
- Mathematical Modeler
- Mathematical Consultant

INDUSTRY
INDUSTRY
- Data Scientist
- Machine Learning Engineer
- Actuary
- Data Engineer
- Business Analyst
- Quant Developer
- Risk Analyst
- AI/ML Researcher
- Operations Research Analyst
- Business Intelligence Analyst
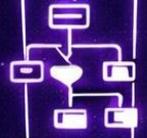
GOVERNMENT & PUBLIC SECTOR
GLEORMENT
- Policy Analyst
- Cryptographer (NSA, FBI)
- Economic Forecaster
- Statistician
- Defense Analyst (CIA)
- Intelligence Analyst
- Cybersecurity Specialist
- Intelligence Officer
- National Labs Researcher
- Homeland Security Analyst

- **High Earning Potential**
- **In-Demand Skills**
- **Endless Opportunities**

Unlock a World of Opportunities with Applied Math & Data Science!