# UMBC Graduate Programs Comprehensive Comparison (Updated with Specific Scores, No Notes)

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| Program | Degree Offered | Core Courses | Focus Areas | Admission Requirements | Potential Career Roles |
| Data Science | M.P.S. | Introduction to Data Science, Data Analysis, Machine Learning, Big Data Platforms | Big Data, Analytics, Ethical and Legal Issues | Bachelor's in CS or related field, GRE scores, IELTS score: 6.5 | Data Scientist, Data Analyst, Machine Learning Engineer |
| Software Engineering | M.P.S. | Software Project Management, Quality Assurance, Design Patterns | Applied Project Management, Real-world software development skills | Bachelor's in SE or related field, Work experience preferred, IELTS score: 7 | Software Engineer, Project Manager, Systems Architect |
| Computer Science | M.S., M.P.S., Ph.D. | Algorithms, Operating Systems, Computer Architecture | AI, Machine Learning, Cybersecurity, Networks | Bachelor's in CS, GRE score: 320, IELTS score: 6.5 | Software Developer, Research Scientist, Cybersecurity Analyst |
| Information Systems | M.S., Ph.D. | Database Management Systems, Systems Analysis and Design | Human-Centered Computing, Health IT, Cybersecurity | Bachelor's in IS or related, Professional experience, IELTS score: 6.5 | Systems Analyst, IT Manager, Security Consultant |
| Engineering Management | M.S. | Project Management Fundamentals, Systems Engineering Management | Leadership, Risk Management, Decision Sciences | Bachelor's in engineering, Management experience, IELTS score: 7 | Engineering Manager, Project Lead, Operations Manager |
| Cybersecurity | M.P.S. | Network Security, Information Assurance, Secure Software Development | Cryptography, Cyber Operations, Defense Strategies | Bachelor's in CS/IT, Relevant work experience, IELTS score: 6.5 | Cybersecurity Specialist, Information Security Analyst |
| Electrical Engineering | M.S., Ph.D. | Advanced Electromagnetics, Control Systems | Signal Processing, Photonics, Nanotechnology | Bachelor's in EE, GRE scores, IELTS score: 7 | Electrical Engineer, Systems Engineer, Researcher |
| Health Information Technology | M.P.S. | Healthcare Data Management, Electronic Health Records | Patient Safety, Healthcare IT, Data Privacy | Background in healthcare or IT, Professional experience preferred, IELTS score: 6.5 | Health IT Specialist, Clinical Informatics Manager |
| Mechanical Engineering | Verify Degree | Thermodynamics, Machine Design | Robotics, Fluid Mechanics, Energy Systems | Bachelor's in ME, GRE for Ph.D., IELTS score: 6.5 | Mechanical Engineer, Robotics Engineer, Energy Systems Analyst |
| Project Management | Integrated into Engineering Management | Project Planning, Execution, and Control | Strategic Project Management, Agile Practices | Experience in project management, CAPM or PMP certification, IELTS score: 7 | Project Manager, Program Director, Operations Analyst |