

**Marketable Skills for Graduate Computer Science**

**Degree and Major: Master of Science in Computer Science**

After completing the **MS in computer science** degree program at UT Tyler, the student can:

<b>Soft Skills:</b>	<b>Hard Skills:</b>	<b>Unique Features of Program</b>
<ul style="list-style-type: none"> <li>• Demonstrate professional proficiency and communication with project presentations, research papers, UML diagrams, and E-R diagrams.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate advanced competence in programming; object-oriented paradigm; data management; network protocols and security; operating systems; SQL; and cybersecurity</li> </ul>	<ul style="list-style-type: none"> <li>• Students throughout their degree program provided opportunities for hands-on experiences in specialized computing laboratories such as networking and analytics.</li> </ul>
<ul style="list-style-type: none"> <li>• Use experiences in data collection and treatment, experimental design, literature review, and formal publication composition to perform research over the broad field of computer science.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate proficiency in programming in functional language(s): foundational concepts; lambda calculus; higher-order functions; dynamic scoping; Lisp and Scheme languages</li> </ul>	<ul style="list-style-type: none"> <li>• Special dedicated classrooms provide a desktop computer for each student to optimally enhance direct, in-class, hands-on learning opportunities with computing software.</li> </ul>
<ul style="list-style-type: none"> <li>• Demonstrate leadership and teamwork by working in groups to achieve goals of software systems development and research projects.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate proficiency in object-oriented programming language(s): objects and classes; methods and messages; libraries; inheritance; abstraction; and polymorphism.</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunities for students to serves as success coaches for beyond-classroom assistance of undergraduate computing majors.</li> </ul>
	<ul style="list-style-type: none"> <li>• Demonstrate proficiency in logic programming language(s): formal logic; propositions; goals and queries; resolution.</li> </ul>	<ul style="list-style-type: none"> <li>• Selected topic electives provide students with knowledge and skills for contemporary study of computing trends.</li> </ul>
	<ul style="list-style-type: none"> <li>• Demonstrate a technical understanding of operating systems including: OS Design and Implementation; Security; Paging; Memory Management; Machine-Level Instruction; Processes; Mutual Exclusion; Locking.</li> </ul>	<ul style="list-style-type: none"> <li>• Special career success opportunities linking students with prospective employers for jobs and internships.</li> </ul>
	<ul style="list-style-type: none"> <li>• Demonstrate technical competence in computer networks: Internet Stack; Data Communication; Transmission; Protocols; TCP; Error Correction and Detection; Encoding and Decoding; RFCs; ICANN.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Demonstrate an enhanced understanding of database management including: Relational Model; E-R Model; SQL; Unstructured Data; Data Storage; Access Methods; Normalization</li> </ul>	
	<ul style="list-style-type: none"> <li>• Demonstrate an enhanced understanding of cybersecurity including: Attacking; Penetration Testing, Cryptography, Secure Transmission, and Security Management.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Demonstrate competence in UNIX and Linux: Unix Architecture, Unix Environment; Commands, Unix Shell, Interpreted Languages, and Permissions.</li> </ul>	