

## Why Take This Class?

Correctness is the most critical concern of the software industry. Computers are increasingly assuming central roles in safety- and security-critical systems, leading to dire consequences of viruses, worms, and software faults. Almost all of these viruses, security attacks, and equipment malfunctions are due to flaws in software design and implementation that could have been found by a truly comprehensive and well-structured process to verify and validate the properties and behaviors of the software. Additionally, there are specifications for information flow, which are sometimes called security policies, and the design and implementation of these security policies also must be verified and validated. The methods needed to verify and validate the security policies largely overlap with those needed to verify and validate other types of specifications.

The goal of this course is to make available to students in Computer Sciences at the University of Texas unique training in verification and validation across functional, security and performance properties. Students successfully completing this course will find themselves with a unique, highly valuable and saleable skill. While most industrial practice still relies entirely on informal testing, most companies involved in software development are eager to improve the quality of their quality assurance processes. These companies can improve the quality of their software only if staff capable of designing and implementing better processes can be found and employed. There will be very few competitors for positions who have equivalent training and skills