1. *Course number and name*: CSCI 4534 Software Testing and Quality Assurance

2. *Credits and contact hours*: 3 credit, 3 contact

3. *Instructor's or course coordinator's name*: Andrew A. Allen, PhD

4. *Textbook, title, author and year*: Software Testing - A Craftsman's Approach, 4th Ed., P. Jorgensen
   a. *Other supplemental materials:* None

5. *Specific course information*
   a. *Brief description of the content of the course (Catalog Description)* : Essential concepts and technology for software systems quality assurance and testing. Course covers software testing and the quality assurance body of knowledge including theory, models and methods, as well as contemporary standards and tools. Graduate students will be given an extra assignment determined by the instructor that undergraduates will not be required to do.
   b. *Prerequisites*: A minimum grade of "C" in CSCI 3236
   c. *Indicate whether a required, elective, or selected elective course in the program*
      Elective course for BS-CS.

6. *Specific goals for the course*
   a. *Specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.*

Course Learning Outcomes	Student Outcomes
Describe the software engineering testing process	1a
Describe the quality assurance process and its role in software development.	1a
Demonstrate proficiency in a variety of testing techniques, methods, and tools.	1a, 1b, 1c, 1d
Describe the state of the practice verification and validation techniques.	1a, 1i
Demonstrate proficiency in managing a software project to customer requirements	1a, 1b, 1c, 1d
Understand the impact of ISO 9000 and the capability maturity model on software quality and testing will be addressed.	1a, 1i

b. Student Outcomes:

- 1a: An ability to apply knowledge of computing and mathematics appropriate to the discipline
- 1b: An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- 1c: an ability to design a system, component, or process to meet desired needs
- 1d: An ability to function effectively on teams to accomplish a common goal
- 1i: An ability to use current techniques, skills, and tools necessary for computing practice

7. *Brief list of topics to be covered*

- QA in the SDLC, V model, IEEE
- Test animation Integrated support Units
- Developer's vs Tester's Perspective
- SQA Manager/Expert vs Management perspective
- Foundations (Models and Coverage)
- Input Partitioning
- Graph Coverage
- Logic Coverage
- Data flow
- Methodology, Standards, and Integration Testing
- SW Assurance
- Security
- SQA-SPI Processes