

SYSC 4907 – Fall 2026/Winter 2027

Supervisor	Nafiseh Kahani
Co-supervisor	
Course section	SYSC 4907 Y
Project ID	
Project title	AI Agent for API Testing and Security Monitoring
Project description	<p>This project will build an AI-assisted platform that tests and monitors at least five local FastAPI applications from different domains, such as healthcare appointments, online banking, and warehouse/inventory management. The AI agent will read each application's OpenAPI/Swagger specification, generate executable API test suites, run them, validate responses, detect seeded faults, classify failures, and produce triaged reports. The generated tests will include happy-path tests, schema-validation tests, authentication tests, boundary-value tests, fuzz tests, and stateful workflow tests such as create-read-update-delete. The tests will run deterministically without relying on the LLM at runtime. The system will evaluate performance using seeded faults and report metrics such as fault detection rate, false-positive rate, endpoint coverage, runtime, and cost. A monitoring module will also analyze application logs to detect suspicious behavior such as failed logins, unauthorized access, abnormal data changes, and unusual API activity.</p>
Program(s)	Computer Systems Software
Maximum number of students	3
Meeting time with supervisor (optional)	
Do you want the student to contact you before the office assign this project to them ? (Yes/No)	