

QUANTUM SECURITY & PQC

The Quantum Threat: Technical Deep Dive

TECHNICAL DEEP DIVE

Examine the mechanics behind quantum cryptanalysis, from quantum circuits and error correction to resource estimates and defensible threat timeline assessments.

DURATION

8 hours

Short professional course

LEVEL

Advanced

PQC basics recommended

ON-DEMAND FEE

US\$699

Online on-demand

Assess the threat from the evidence.

WHAT YOU WILL LEARN

- ✓ Explain how Shor's algorithm affects RSA and elliptic-curve cryptography.
- ✓ Assess Grover's algorithm and its practical limits.
- ✓ Interpret error-correction overhead and cryptanalytic resource estimates.
- ✓ Build a threat timeline assessment from demonstrated capabilities and research.

WHO SHOULD ATTEND

Security researchers, cryptography engineers, technical analysts and senior architects who assess quantum threats, plus quantum computing professionals studying cryptanalysis.

PREREQUISITES

PQC fundamentals recommended. Foundation or PQCS Specialist Training provides optional preparation.

Why Quantum Academy

The course draws on the Applied Quantum PQC Migration Framework and faculty experience running migration programs inside organizations.

What you will study

Quantum cryptanalysis, resource estimates and evidence-based threat assessment.

01 Quantum Computing Mechanics

Study qubits, gates, circuits and measurement. Distinguish physical from logical qubits and build the mathematical grounding for quantum algorithms.

02 Shor's Algorithm and Cryptanalysis

Examine period finding and the quantum Fourier transform in Shor's algorithm. Compare public-key exposure with Grover's impact on symmetric primitives.

03 Error Correction and Resource Estimates

Assess error-correction thresholds and overhead. Read estimates for RSA and ECC in terms of logical qubits, physical resources, runtime and uncertainty.

04 Timeline Assessment Methodology

Read hardware roadmaps critically, separate announcements from demonstrations and use published evidence to construct a defensible assessment.

Formats and fees

Online on-demand	US\$699
Live online	US\$1,049
In person	US\$1,399
Private team training	Custom quote

What is included

- Course handbook: full material with written instructor notes.
- 180 days of online on-demand access. Where that course is not yet published, the 180 days start on the day it is.
- PDF copy of Quantum Ready by Marin Ivezic, at no extra cost.

Includes a certificate of completion, not professional certification. CPE earned may apply toward Quantum Academy certification maintenance.

Explore the course

View course details at QuantumAcademy.com



On-demand enrollment opens soon. Check the course page for live dates and availability.

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