

Aviation Security Threat Assessment: From Pre-Flight to Landing

Learn to identify and mitigate threats for aviation professionals, covering regulations, risk analysis, and crisis response.

Cybersecurity Instructor: Sarah Mitchell • 5 sections • 59 lessons • 20.25h total

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About this course

Aviation security faces constant pressure from terrorism, smuggling, and cyber attacks. In 2026, threats are more complex due to new technologies and geopolitical shifts, making it critical for professionals to stay current. This course provides practical training in threat assessment and security protocols, using video lectures, real-world case studies, and hands-on exercises to build actionable skills. You'll learn to apply regulatory frameworks, analyze risks, and manage crises from pre-flight checks to landing operations.

Course curriculum

Foundations of Modern Aviation Security

- **Introduction to Aviation Security Principles (18m)**
Overview of core principles that guide civil aviation security and their role in global safety.
- **The Global Importance of Aviation Security (25m)**
Why aviation security matters, with examples of economic impacts and recent incidents.
- **Key Stakeholders in Aviation Security (12m)**
Roles of ICAO, national authorities, airlines, and passengers in maintaining security.
- **The 2026 Threat Landscape for Aviation (32m)**
Current threats including cyber risks and smuggling methods, with up-to-date data and trends.
- **Introduction to the Layered Security Model (18m)**
How multiple security layers work together to protect flights from ground to air.
- **Historical Context of Aviation Threats (25m)**
Key events that shaped modern security practices and lessons learned for today.
- **Current Challenges in Aviation Security (12m)**
Discussing present-day issues like privacy, resource constraints, and evolving tactics.
- **Setting the Foundation for Advanced Learning (8m)**
Preparing for deeper topics in later modules, with clear learning objectives outlined.

Regulatory Framework & Security Protocols

- **Overview of ICAO Annex 17 Standards (25m)**
Deep dive into international security standards and their application in aviation.
- **National Regulations: TSA and EASA Examples (18m)**
Comparing key national regulations and how they align with global rules.
- **Passenger Screening Procedures Step-by-Step (32m)**
Practical guide to current screening methods and common issues encountered.
- **Baggage and Cargo Security Protocols (18m)**
Ensuring safe handling from check-in to loading, with real case studies.
- **Airport Access Control Systems (12m)**
Managing secure areas and restricting unauthorized entry effectively.
- **Aircraft Security Measures (25m)**
Protocols for securing aircraft on ground and during boarding processes.
- **Personnel Vetting and Background Checks (18m)**
How to screen staff and contractors for insider threat prevention.
- **Secure Area Management Best Practices (12m)**
Maintaining integrity of secure zones with monitoring and control strategies.
- **Managing Conflict Zones in Aviation (32m)**
Protocols for flights through high-risk regions and current advisory updates.
- **Geopolitical Risk Advisory Updates (18m)**
Interpreting and applying geopolitical alerts to daily operations.

- **Integrating International and National Rules (12m)**
Harmonizing different regulatory frameworks for consistent compliance.
- **Case Study: Regulatory Compliance in Action (25m)**
Real-world scenario where regulations were applied to resolve security issues.

Advanced Threat Assessment & Risk Analysis

- **Fundamentals of Threat Assessment Methodologies (18m)**
Structured approaches to evaluating threats in aviation contexts.
- **Behavioral Analysis Techniques in Aviation (25m)**
Identifying suspicious behavior at checkpoints and in terminals.
- **Identifying Insider Threat Indicators (32m)**
Spotting red flags among staff and contractors for early intervention.
- **Assessing Risks from Autonomous Systems (18m)**
Evaluating threats from drones and automated vehicles in airspace.
- **Drone Threat Evaluation and Mitigation (12m)**
Practical steps to counter unauthorized drone activities near airports.
- **Risk-Based Screening Concepts (25m)**
Moving towards individualized security with data-driven decisions.
- **Individualized Security Approaches (18m)**
How to tailor screening based on passenger risk profiles ethically.
- **Data-Driven Risk Analysis Methods (12m)**
Using analytics to predict and prevent security incidents.
- **Scenario Planning for Threat Assessment (32m)**
Building response plans for various threat scenarios with examples.
- **Practical Application: Threat Assessment Workshop (25m)**
Hands-on session to apply learned methods to real case studies.

Technology & Innovation in Aviation Security

- **Computed Tomography (CT) in Baggage Screening (18m)**
How CT scanners work and their role in detecting concealed threats.
- **Multi-View X-Ray Systems and Their Applications (12m)**
Exploring the technology behind advanced X-ray for clearer imaging.
- **Advanced Imaging Technology for Passengers (25m)**
Current tools for body scanning with privacy and efficiency balance.
- **Introduction to AI in Threat Detection (32m)**
Using artificial intelligence to identify threats faster and more accurately.
- **Machine Learning for Predictive Analytics (18m)**
Applying ML to forecast security risks and optimize screening.
- **Cybersecurity Threats to Aircraft Systems (25m)**
Protecting avionics and onboard systems from cyber attacks.
- **Securing Air Traffic Management Infrastructure (18m)**
Defending critical systems that guide flights from ground to air.

- **Protecting Connected Aviation Systems (12m)**
Security measures for IoT and networked devices in aviation.
- **Next-Generation Sensor Technologies (32m)**
Horizon scanning for emerging sensors that could enhance security.
- **Automated Decision Support Systems (18m)**
Tools that assist security personnel in making quick, informed choices.
- **Integrating New Tech into Existing Protocols (25m)**
Strategies for adopting technology without disrupting operations.
- **Case Studies: Technology Implementation (12m)**
Real examples where new tech improved security outcomes.
- **Future Tech Horizons in Aviation Security (18m)**
What's coming next in security tech and how to prepare for it.
- **Balancing Privacy and Security with Technology (25m)**
Navigating ethical considerations when deploying advanced tools.
- **Training for Technology-Enhanced Security (8m)**
Ensuring staff can effectively use new security technologies.

Crisis Management & Future Preparedness

- **In-Flight Security Procedures Overview (18m)**
Protocols for handling security incidents while airborne.
- **Crew Response to Security Incidents (25m)**
Training crew members to manage threats calmly and effectively.
- **Coordinating Emergency Responses: Hijacking Scenarios (32m)**
Step-by-step coordination for hijacking events with authorities.
- **Dealing with Sabotage and Coordinated Attacks (18m)**
Response plans for deliberate acts against aircraft or airports.
- **Post-Incident Investigation Techniques (12m)**
Gathering evidence and analyzing incidents to prevent recurrence.
- **Data Sharing and Security Intelligence Loops (25m)**
How information flows between agencies to improve security.
- **Learning from Past Incidents (18m)**
Case studies on lessons learned and applied in current practices.
- **Preparing for Unmanned Traffic Management Security (32m)**
Security challenges with drones and how to address them proactively.
- **Space Tourism Security Considerations (18m)**
Unique threats in emerging space travel and mitigation strategies.
- **Evolving Threat Actors and Adaptation Strategies (12m)**
Understanding how threat groups change and how to stay ahead.
- **Building Resilient Security Systems (25m)**
Designing systems that can adapt to new threats over time.
- **Future-Proofing Aviation Security (18m)**
Long-term planning for security in a changing environment.

- International Cooperation in Crisis Management (12m)
Collaborating across borders for effective response to incidents.
- Simulation and Drills for Preparedness (32m)
Conducting realistic exercises to test and improve readiness.

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