



Integrating Cybersecurity Into Emergency Management Programs

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Today's Presentation



Introduction



Cybersecurity Threat



Landscape of current emergency management higher education programs.



Recommendations



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Introduction

- Cybersecurity is a rapidly emerging threat
- Today's market demand requires and prefers cybersecurity expertise/ knowledge/ background
- EMs are increasingly required to deal with the consequences of cyber attacks.
- Cybersecurity should be part of an all hazard approach, but understanding the unique interactions necessary



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The Cybersecurity Threat – Some Examples

- Denial of Service (DOS) attacks on 911 centers
- Ransomware attacks on states and local governments, and other critical infrastructure
- Breach of government records
- Civil unrest brought on by social media trolling or hackers



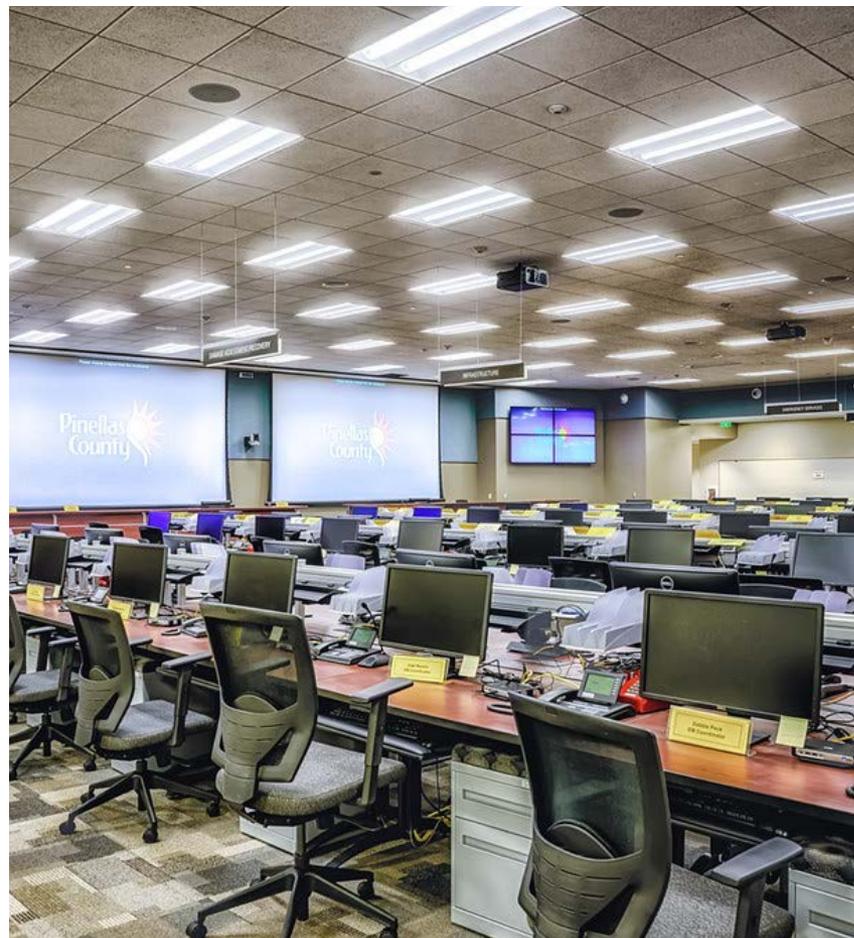
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T-DOS Attack on 911 Centers

- 911 centers in over 12 U.S. States were targeted in a coordinated T-DOS attack in 2016
- PSAPs were inundated with fake phone calls
- 911 centers could not distinguish between fake phone calls and legitimate emergency requests



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Ransomware Attacks

- Baltimore City was hit with a ransomware attack in 2019
- Louisiana government declares a state of emergency after cyberattack.
- 22 Texas Towns Hit With Ransomware Attack In 'New Front' Of Cyberassault
- Hackers Are Holding Baltimore Hostage: How They Struck and What's Next
- Hit by Ransomware Attack, Florida City Agrees to Pay Hackers \$600,000
- Second Florida city pays giant ransom to ransomware gang in a week
- New Orleans Declares State of Emergency Following Cyber Attack
- Mississippi City Operations Disrupted By Ransomware



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Breach of Government Records

- Office of Personnel Management (OPM) was subjected to a massive hack of its personnel files
- Hackers exfiltrated millions of sensitive records, including Extremely Contained on SF-86 forms.
- Hackers gained access to 5-6 million fingerprints of U.S. employees
- Left defense/intelligence agencies vulnerable to espionage and blackmail



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“Hactivism”

- Political activism in which hacking skills are employed against powerful institutions
- Russian (GRU) disinformation campaign during 2016 Presidential Election
- Trolling during 2015 Baltimore City Unrest



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The Current Landscape

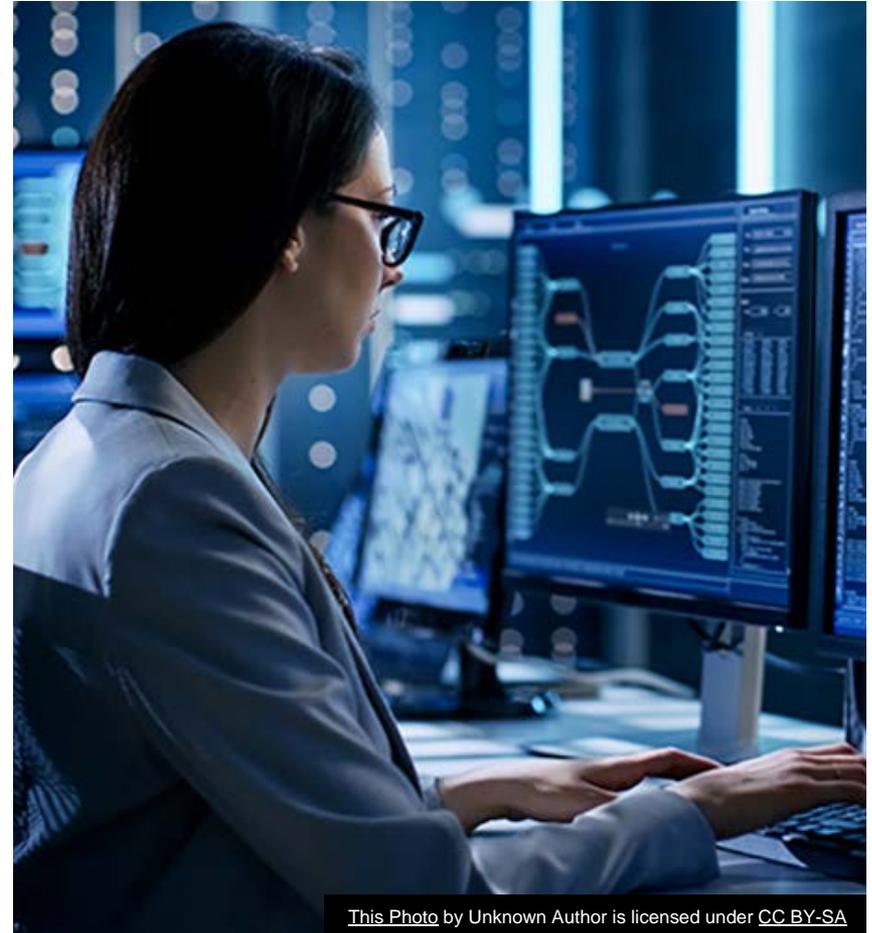
- 9 PHD Programs- 0% offer cyber courses
- 65 Graduate Programs (not certificate programs)- 20% offer cyber courses, mostly as part of HMLS
 - 15% more than last year
- 83 Undergraduate Programs (not certificate programs)- 5% offer cybersecurity classes, and only under the HMLS umbrella



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Recommendations

- **Interdisciplinary approach**
 - Integrate **Cybersecurity** into *Emergency Management education*
 - Cybersecurity Preparedness e.g. Cyber Response Plan
 - Consequence Management
 - Law and Policy
 - All-Hazard Approach



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Recommendations

- **Interdisciplinary approach –**
 - Integrate *Emergency Management* into *Cybersecurity Education*
 - Preparedness and planning
 - Risk and vulnerability assessments
 - Training and exercise
 - Coordination of resources
 - Communication through available EM resources
 - EOC Activations
 - Critical Infrastructure
 - COOP planning
 - NIMS



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The Benefits of Integration

- **Well-Rounded and Better-Prepared Emergency Management/Cybersecurity Professionals**
 - Relevant subject matter expertise
 - No need for “on-the-job training” during a disaster
 - Can bring institutional knowledge and expertise to new venues
 - Private Sector
 - Public Sector



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The Benefits of Integration

- **Meeting Market Demand:**
Today's market demand requires and prefers cybersecurity expertise/ knowledge/ background
 - Cybersecurity is a rapidly emerging threat
 - Higher program marketability
 - More marketable graduates



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Conclusion/Takeaways



1. Cyber attacks/ breaches/ threats can have repercussions that impact emergency management and are the most rapidly growing threat



2. Cyber incident response should be seen as part of an all hazard approach and not in a separate silo



3. Emergency management should incorporate cybersecurity into higher education programs to breed better equipped emergency management professionals



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Questions/Comments

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References

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- <https://training.fema.gov/hiedu/collegelist/>



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