Greetings from the ... Air Force Institute of Technology

“Air Force Tech”

Todd Stewart, PhD
Major General, USAF (Ret.)
Director and Chancellor
Bottom Line Up Front

There is significant untapped potential for mutually-beneficial, complimentary collaboration between NPS and AFIT.
Discussion Points

About AFIT

- AFIT and NPS
Where We Fit in the USAF

Dr Heather Wilson, SecAF
(Nominated)
Gen David Goldfein, CSAF

Lt Gen Darryl Roberson
Commander

Lt Gen Steven Kwast
Commander

Todd Stewart
Chancellor

AFIT: The future of Airpower starts here!
Our Mission

We help build Airpower by educating America’s military and civilian Airmen to accomplish the U.S. Air Force’s core missions, in support of joint and combined operations, more effectively, efficiently, sustainably and affordably:

- **Air & Space Superiority**
- **Intelligence, Surveillance & Reconnaissance (ISR)**
- **Rapid Global Mobility**
- **Global Precision Strike**
- **Command and Control**

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- Rapid Global Mobility
- Global Precision Strike
- Command and Control
- Plus Cyber
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• Air & Space Superiority
• Intelligence, Surveillance & Reconnaissance (ISR)
• Rapid Global Mobility
• Global Precision Strike
• Command and Control

AFIT has been designated as the Air Force’s “Cyber Technical Center of Excellence”
What We Do

Career-long Airmen professional development:

- Manage most of the Air Force’s sponsored, graduate-level academic education programs

- Deliver career-long, functional Professional Continuing Education (PCE) courses (short, non-credit courses)
Who We Do It With

Great people … about:

- ~ 500 uniquely-qualified military and civilian faculty and staff; 50-100 contract personnel
- ~ 3,200 competitively-selected graduate students
- ~ 25,000 Continuing Professional Education students

AFIT will touch more than 5,000 people this week
How and Where We Do It

**In-residence** advanced academic degree and non-degree programs

**AFIT** at Peterson AFB
- Colorado

**AFIT** at Kirtland AFB
- New Mexico

**AFIT graduate faculty (on TDY)** teach an MS degree program on site at Joint Base McGuire-Dix-Lakehurst
- New Jersey

**AFIT** at Wright-Patt AFB
- Ohio

**AFIT faculty (on TDY)** teach PCE courses at numerous military installations in the U.S. and overseas

**AFIT** students are at NPS and ~400 civilian institutions in the U.S. and in ~12 foreign countries
How and Where We Do It

• Programs and courses delivered by various modes of **distance learning ("DL")**, e.g.:
  
  o On-line courses (synchronous and asynchronous)
  
  o TV broadcasts via satellite
Wright-Patterson AFB

Downtown Dayton

University of Dayton

Wright Field

Patterson Field

Wright State University

Air Force Research Laboratory - AFRL

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AFIT’s Functional Organization

AFIT

Advanced Academic Education
- Graduate School of Engineering & Management
- Civilian Institutions Program

Professional Continuing Education
- School of Systems & Logistics
- Civil Engineer School
- School of Strategic Force Studies
AFIT’s Functional Organization

Advanced Academic Education
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Professional Continuing Education
- School of Systems & Logistics
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Graduate School of Engineering and Management (GSEM)

- Six academic departments
- 25 MS degrees; 14 PhD degrees; 10 graduate certificates (all are Defense-focused & primarily STEM)
- Six multi-disciplinary research centers
- 800-900 students (~ 170 PhD students)
- 20+ international officers from 7+ countries
- ~ $25 million in sponsored research
AFIT Research Centers

Air Force (multi-disciplinary) Research Centers:
- Autonomy & Navigation Technology Center
- Center for Cyberspace Research
- Center for Directed Energy
- Center for Operational Analysis
- Center for Space Research & Assurance
- Center for Technical Intelligence Studies & Research

Office of the Secretary of Defense (OSD) Center:
- STAT Test & Evaluation Center of Excellence
AFIT’s Functional Organization

- Advanced Academic Education
  - Graduate School of Engineering & Management
  - Civilian Institutions Program

- Professional Continuing Education
  - School of Systems & Logistics
  - Civil Engineer School
  - School of Strategic Force Studies
1. AFIT

2. NPS, if AFIT doesn’t offer the program, but NPS does

3. Civilian institution, if neither AFIT nor NPS offers the program
Civilian Institutions Program

• Two types of programs (~2,300 students):
  o Medical (~ 1,800 students)
  o Line, Legal & Chaplain (~ 500 students)
    ▪ Education With Industry (EWI)

• Currently, AFIT students are at nearly 400 locations in the US and 12 foreign countries, including civilian institutions and the Naval Postgraduate School
Air Force Education with Industry

- Alcoa
- Amazon
- Ball Aerospace
- Boston Consulting Group
- Boeing
- CACI
- CH2M Hill
- Coca-Cola
- FedEx
- GDIT
- Intel
- La Quinta
- Lockheed Martin
- Loews Hotels
- Microsoft
- NIA
- Northrop Grumman
- Orbital ATK
- ORNL
- RAND
- Raytheon
- Space X
- UPS
- USAA
- ULA
- VMware
AFIT’s Functional Organization

AFIT

Advanced Academic Education
- Graduate School of Engineering & Management
- Civilian Institutions Program

Professional Continuing Education
- School of Systems & Logistics
- Civil Engineer School
- School of Strategic Force Studies
School of Systems & Logistics

- ~100 faculty
- 100 courses (~60% by distance learning)
  - Acquisition
  - Financial Management
  - Software Engineering
  - Sustainment
  - Systems Engineering
- Annual Enrollment: ~18,000
The Civil Engineer School

- 40 faculty
- 70+ courses (~ 80% by distance learning)
  - Engineering Management
  - Environmental Management
  - Housing Management
  - Technical Applications
- Annual Enrollment: ~ 5,000
AFIT's Functional Organization

AFIT

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School of Strategic Force Studies

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Dean

Department of Nuclear Studies
Kirtland AFB

PCE: Nuc 200 / 300 / 400
~ 2,200 students

Department of Space Studies
Peterson AFB

PCE: Space 200 / 300
~ 800 students

Department of Cyber Studies
Wright-Patt AFB

PCE: Cyber 200 / 300
~ 680 → 1,000 students

Department of Extension Studies
Civilian Institutions

Certificate, Bachelor, Masters, Doctorate
200 → 2,000 students

NEW Activated 01 December 2016
AFIT’s Functional Organization

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Advanced Academic Education
- Graduate School of Engineering & Management
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Professional Continuing Education
- School of Systems & Logistics
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- School of Strategic Force Studies
AFIT = Air Force Cyber Technical Center of Excellence

AFIT Chancellor (AFCyTCoE Director)

Advanced Academic Education

Professional Continuing Education

Graduate School of Engineering & Management

Center for Cyberspace Research

School of Systems & Logistics

Civil Engineer School

School of Strategic Force Studies

AFIT: The future of Airpower starts here!
Outreach & Service

Consulting Support to All Four Military Services – 40 Major Programs
Outreach & Service

Primary Focus:
Promoting STEM Education and Careers

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Discussion Points

About AFIT

AFIT and NPS

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AFIT-NPS Collaboration

“Review of Specialized Degree-Granting Graduate Programs of the Department of Defense in STEM and Management”
National Research Council
Division on Engineering & Physical Sciences
June 2014

**Recommendation 5.** Enhance AFIT and NPS graduate education outcomes, by increasing institutional collaboration through partnerships and effective distance learning methods.
Congratulations to Our Winter Quarter Graduates
11 Air Force
## Air Force at NPS

<table>
<thead>
<tr>
<th>NPS Degree Program</th>
<th># AFIT Students (Winter Qtr Grads)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA in Security Studies (Regional Studies)</td>
<td>55 (10)</td>
</tr>
<tr>
<td>MA in Security Studies (Homeland Security &amp; Defense)</td>
<td>2</td>
</tr>
<tr>
<td>MS in Defense Analysis</td>
<td>13</td>
</tr>
<tr>
<td>MS in Human Systems Integration</td>
<td>2</td>
</tr>
<tr>
<td>MBA Programs</td>
<td>15</td>
</tr>
<tr>
<td>PhD in Space Systems Engineering</td>
<td>1</td>
</tr>
<tr>
<td>PhD in Meteorology</td>
<td>1(1)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>89 (11)</strong></td>
</tr>
</tbody>
</table>

Air Force faculty and staff: 2 (O-6 & O-5)
Colonel Timothy A. Sands
Dean School of Strategic Force Studies

- Senior Navigator - B52H (1,945 hours / 610 in combat)
- PhD – Astronautical Engineering from NPS
- MS – Mechanical Engineering from Columbia University
- MS – Space Operations from the U of Colorado
- Graduate of the Air War College
- Acquisition certified in Program Management and Test and Evaluation
- Language: Chinese (Mandarin)
USN & USMC at AFIT

• Students:
  o USN: 0
  o USMC: 6

• USN Faculty and staff:
  o Faculty: 3 → 0 in 2018
  o Staff (O-6): 1 → 0
AFIT-NPS Collaboration

My assessment:

- Practically speaking, the two legacy formal agreements (USN-USAF MOA and NPS-AFIT MOU) are no longer in force.
- Current collaboration is essentially ad hoc, tactical and limited (e.g., faculty-to-faculty).
- Enterprise-level relationship currently limited to representation on our respective advisory boards.
- There remains significant untapped potential for mutually-beneficial, complimentary collaboration.
Opportunities for Future NPS – AFIT Collaboration?

Education  Research  Faculty Development
Outreach/Service  Governance

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Distance Learning (DL) programs re: Nuclear Enterprise and Deterrence and/or NC3,”administered for the Air Force by AFIT; partner universities:

- Harvard
- Stanford
- King’s College
- Southern Methodist
- Portland State
- Henley Putnam
- AFIT
- NPS
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School of Strategic Force Studies

Dean

Department of Extension Studies
Civilian Institutions

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Distance Learning (DL) programs re: Nuclear Enterprise and Deterrence and/or NC3, ”administered for the Air Force by AFIT; partner universities:

• @ NPS: 3 students enrolled – NPS’ (DL) MS in Systems Engineering degree, including AFIT’s 3-course DL graduate certificate in “Nuclear Weapons Effects, Policy & Proliferation”
Activated 01 December 2016

- We recently taught a joint AFIT-NPS “Intro to Space” short course in situ in Chile (at the request of AFOSR, in coordination with ONRG)

- We recently directed 14 new students from Chile into the NPS Space Ops Certificate program (DL)
NPS Centers of Common Interest

- Acquisition Research Program
- Aerodynamic Decelerator Systems Center
- Center for Autonomous Vehicle Research
- Center for Decision, Risk, Controls & Signals Intelligence
- Center for Information Systems Security Studies and Research
- Center for Infrastructure Defense
- Center for Interdisciplinary Remotely Piloted Aircraft Studies
- Center for Joint Services Electronic Warfare
- Center for Materials Research
- Center for Measurement and Signature Intelligence Research
- Center for Network Innovation and Experimentation
NPS Centers of Common Interest

- Center for Radiation Hardened Electronics
- Center for Survivability and Lethality
- Center for the Study of Mobile Devices and Communications
- Common Operational Research Environment Program
- Information Dominance Center for Excellence
- Information Operations Center for Research
- Remote Sensing Center
- Robo Dojo
- SEED Center for Data Farming (Simulation Experiments & Efficient Designs)
- Spacecraft Research and Design Center
Some Areas of Current and Future Emphasis for AFIT

- Nuclear Enterprise Operations
- Cyber (Offense and Defense; networks & embedded systems)
- Space (as a warfighting domain)
- Autonomy and Navigation
- “Big Data” and Data Analytics
- Hypersonics
- Directed energy
- Man-Machine (Machine-enhanced Human Performance)
- “ISR” (Intelligence, Surveillance and Reconnaissance)
- Energy and Spectrum Management
- Multi-Domain & Fused Sensing, Operations and Effects
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- AFIT and NPS

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