Kansas State University
Manhattan, Kansas

Office of VP for Research
Facility Security Office

Research, Teaching, and Collaboration with International Partners

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The Situation Today

- American Universities and Internationals
  - Collaboration, creativity, sharing of information are today's hallmarks
  - Essential elements for world's best
  - Results: faculty and students from across the world
- Chinese Impact
  - 328K Chinese studying in US (2016)
    - One-third of all foreign students
  - 25% of STEM graduate students
  - ~15% of STEM undergraduates
  - KSU latest stats: 623 students (http://www.k-state.edu/oip/about/numbers.html)

- Bottom line: We rely upon ideas, participation, …and money

The Threat: Intentional

- **Global Engagement opens vulnerabilities at Universities**
  - **Threat comes from across the globe, not just China**
  - **BUT, China is most coordinated threat**
    - **"Made in China 2025" strategic plan**
  - **Tailored, coordinated whole-of-govt effort**
    - **Not just espionage and cyber theft**
    - **Open source**
    - **Technology transfer through ethnic appeals**
    - **Sponsoring US-based organizations**
    - **Academia**
  - **FSO conclusion: if we're ready for toughest threat, likely ready for all**
- **Main Areas: aviation, communications, biological, agriculture**
  - **All pose threats to US business/military; All represent K-State subjects**

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The Threat: Intentional

- Example: American Superconductor (AS) in China
  - Partnered with Chinese firm Sinovel to provide wind turbines
  - AS made electronics and code
  - Sinovel made blades/turbines
    - Sinovel partly owned by Chinese govt.
  - AS "hardened" systems to protect from theft
    - Ensured few employees had access to software code
  - Sinovel "turned" AS employee
    - Learned he was one of few with access
    - Gave him $1.7 mil, women, apartment
    - "best man, like superman"
  - AS lost >$1 billion and fired 600 people (out of 900)
- Epilogue: Mass. Bought Sinovel turbines through US Govt grant

The Threat: Intentional

- **Example: Iranian attacks against western universities**
  - **Mabna Institute, Tehran - founded in 2013**
    - **Assists Iranian universities and research by stealing access to non-Iranian research**
    - **Specifically, cyber intrusions to steal academic data, IP, and e-mail inboxes**
  - **Conducted spearphishing campaign on behalf of IRGC from 2013-2017**
    - **Created fake websites resembling university login pages, then after credentials entered, automatically redirected to legitimate website**
    - **Compromised 8000 professor e-mail accounts at 144 US and 176 foreign universities**
    - **As per US Dept of Justice, targeted "all types of academic data and IP"**
    - **Stole >31.5 terabytes; cost to US universities was $3.4 billion to procure and access**
  - **Nine Iranians indicted by US in March 2018**

The Threat: Incidental

- **KEY POINT!**
  - **Not all students and faculty are government agents**
  - **In fact, vast majority have good intent**
- **The Problem:**
  - **Impossible to distinguish between them**
  - **Even good intentions sometimes fail**
    - **Pressure from home government**
    - **Pressure back home to succeed**
    - **Delayed patriotism**

The Threat: Incidental

- Example: Western Kentucky University Professor
  - Developed good relationship with local Confucius Institute
  - Presenter at three education conferences in China
  - Developed problem opening file from personal drive
  - Local IT coordinator took flash drive
    - WKU Professor said it was taken without permission
    - Local IT coordinator said he had permission
  - IT coordinator brought back “new” flash drive with files
    - Files on original drive corrupted with malware
  - “I had four years of my scholarly work stolen from me…”
  - Could be either malice or misunderstanding

The Threat: Incidental

- Example: Ruopeng Liu and Duke University
  - Dubbed China's Elon Musk
  - Student at Duke for Dr. David Smith in Electrical Engineering
    - Smith's expertise in materials that minimize microwave signature
    - DoD funded, but apparently not classified
  - Upon graduation in 2009, Liu founded Kuang-Chi Institute in Shenzhen
    - By 2015, sought 3,289 patents ; granted 1,783
    - By 2018, company valued at $6 Billion
    - Chinese government supported with millions in venture capital

Kuang-Chi 光启

  - Smith claims Liu stole his research
    - Cites coordination with fellow Chinese and hosting website for Chinese company
    - Liu claims it was "fundamental research"
  - FBI closed investigation without charges; Duke supports Liu's PhD
    - Shortage of evidence; "Everything he did was explained away" – Dr. Smith

The Solution (so far…)

- **Broad measures**
  - **Stricter Visa scrutiny**
  - **Security Program tailored for Academia**
    - **Annual security conference**
    - **Virtual collaboration platform/listserv**
    - **Senate subcommittee testimony**
    - **Senate-chartered working group**
  - **Export Control Enforcement**

Dr. Kevin R. Gamache, Texas A&M University

Your Role

- Primary
  - Don't suspect everyone!
    - Treat all the same
    - Must continue the trend that's made us successful
- Constant Vigilance
  - Use Common Sense
    - Uniformly enforce measures
    - Speak up if something doesn't look right
    - "Need-to-know" where relevant, especially…
  - Export Control Enforcement
    - Relies upon your adherence and enforcement to succeed
  - Don't hesitate to ask University Research Compliance Office and/or Facility Security Office for help!
    - http://www.k-state.edu/research/faculty/fso/index.html

Export Controls

- U.S. Federal laws and regulations that control export of certain information, technologies, and commodities to foreign persons in the U.S. or abroad
- What is an export?
  - Transfer of certain items, technology, software, or technical data **out** of U.S border by any means (electronic, verbal, shipping etc.)
  - Export or disclosure **within** U.S. of certain items, technology, software, or technical data to a non-US person(s) (visual, verbal, electronic, physical etc.)
- The Export Controls Compliance Program at K-State aims to reduce the institutional and individual risk of export controls violations by providing necessary support, information, and tools to departmental units, employees, and students.

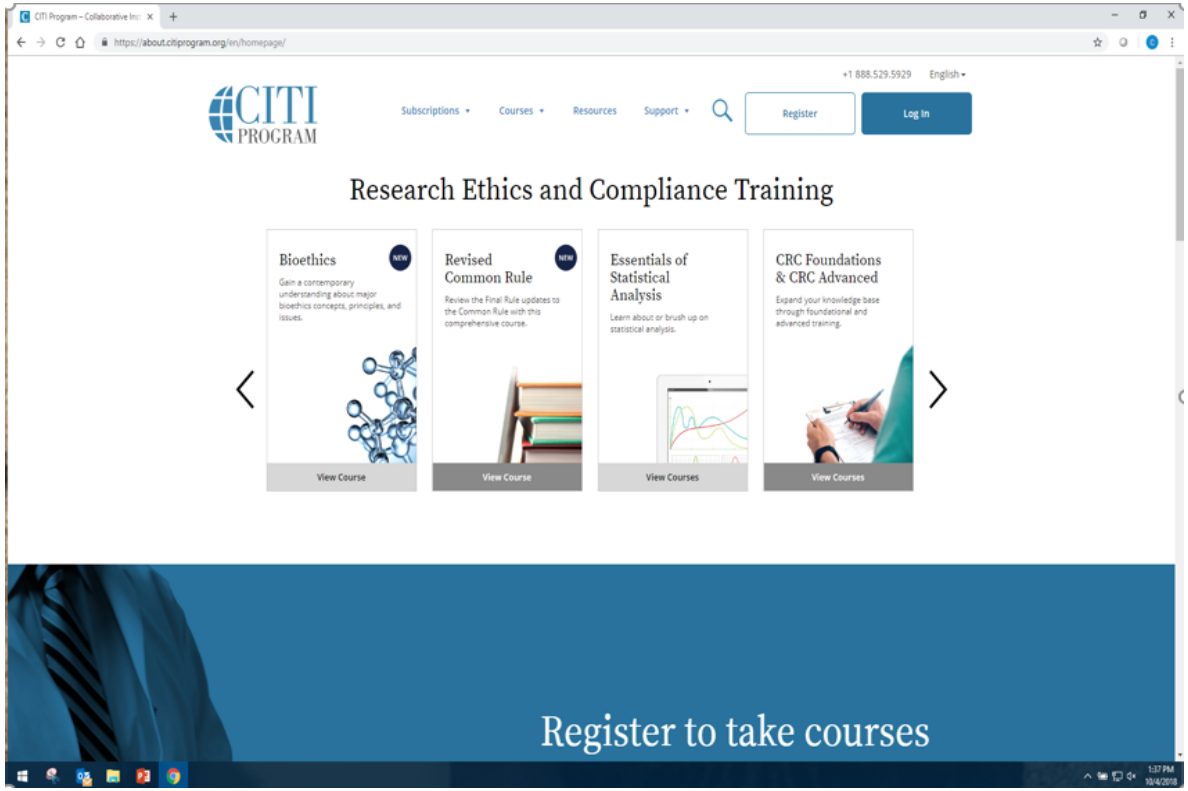
Violation carries severe individual and institutional penalties

- Criminal
  - up to 20 years imprisonment
  - $1million per violation
- Civil
  - up to $500,000 per violation

Responsible Conduct of Research

- Education in RCR is required by:
  - National Science Foundation (I hour CITI training)
  - National Institute of Food and Agriculture (1 hour CITI training)
  - National Institutes of Health (8 substantive hours of face-to-face instruction)
    - NIH requires that all trainees, fellows, participants, and scholars receiving support through any NIH training, career development award (individual or institutional), research education grant, and dissertation research grant must receive instruction in responsible conduct of research.
- Everyone involved in research at K-State is required to receive RCR training

CITI



KSU.edu/comply

Our website contains instructions for logging into CITI for each training area