

## Committee Meeting Minutes

### RESEARCH COMMITTEE Duck Pond Room Inn at Virginia Tech and Skelton Conference Center

June 4, 2017

#### Committee Members Present

Mehmood Kazmi (chair), Steve Sturgis, Horacio Valeiras, Jeff Veatch

#### Board Members Present

Jim Chapman, Greta Harris, C.T. Hill, Chris Peterson, Debbie Petrine, Mike Quillen, Wayne Robinson, Tom Ryan, Mehul Sanghani, Dennis Treacy.

Monty Abbas, faculty representative, Gabe Cohen, undergraduate student representative, Tara Reel, graduate student representative.

#### Guests

David Brady, D'Elia Chandler, Brian Daniels, Martin Daniel, Karen DePauw, Stefan Duma, Ron Fricker, Mike Friedlander, Alan Grant, Chris Gwaltney, Kay Heidbreder, E.G.de Hooper, Tim Hodge, Chris Kiwus, Sharon Kurek, Radka Schenk Kretinska, Connie Marshall, Theresa Mayer, Scott Midkiff, David Moore, Sally Morton, Saied Mostaghimi, Michael Moyer, Brett Netto, Shay Olusina, Kim O'Rourke, Mark Owczarski, Alex Parrish, Patty Perillo, Charles Phlegar, Ellen Plummer, Chris Rahmes, Scot Ransbottom, Thanassis Rikakis, Barry Robert, Timothy D. Sands, Jason Schroedl, Savita Sharma, Gary Sherman, Dwight Shelton, Doug Smiley, Jason Soileau, Tracy Vosburgh, Sherwood Wilson.

- 1. Welcome.** Mehmood Kazmi, chair of the committee, called the meeting to order and welcomed those in attendance. The chair underscored the importance of the university's research program to the advancement of the mission of the university.
- 2. Approval of Minutes.** A motion passed unanimously to approve the minutes of the committee's April 2, 2017 meeting.
- 3. President's Update.** President Sands underscored the important role of integrity and compliance within the university's research enterprise. Vice President Mayer and the Office of Research and Innovation is advancing the university's research integrity and compliance efforts by identifying opportunities for improvements in operations and training, programs, and compliance with federal and other standards.
- 4. Resolution for Approval of Appointments to the Virginia Coal and Energy Research and Development Advisory Board.** The committee considered and

voted unanimously to approve the resolution to reappoint K. Scott Keim, J. Scott Kreutzer, George Mason, and Michael Onifer.

- 5. The Virginia Agricultural Experiment Station and its Agricultural Research and Extension Centers.** Dr. Saied Mostaghimi, director of the Virginia Agricultural Experiment Station (VAES) and professor in the College of Agriculture and Life Sciences provided the committee with an overview of the research contributions associated with the VAES. With a budget of \$113.6M, the VAES includes faculty in four colleges and at 11 Agricultural Research and Extension Centers (ARECs). In addition to significant contributions that include solving salmonella outbreaks, research on microbial water quality, and providing safety training, the AREC offers experiential learning and undergraduate research opportunities for students. The research conducted under the auspices of the VAES will benefit from improvements to research spaces and infrastructure, and modernization to technologies.

Steve Sturgis reminded the committee and attendees that the research conducted by the VAES and ARECs has important and direct positive impact on farmers and the Virginia economy and is a leader in food safety. Farmers rely on the research provided by the VAES as most farmers do not have the capability to conduct research on their own. Board members expressed their support of the important role of the VAES as consistent with the land grant of the university and are encouraged to visit research sites. The VAEC includes important faculty research and student collaborations with Virginia State University

The need for resources to support improvement to research facilities is an important conversation for the board to have. Identifying increased partnerships with industry and private partners could lead to additional support and resources to support the efforts of the VAES. State regulations and processes offer unique challenges to securing appropriately affordable and timely bids for renovated and new VAES facilities. A consortium proposal will be shared with elected and other public officials to help advance private and public partnerships designed to expand collaborations and improve flexibility for VAES initiatives.

- 6. Overview of Research Integrity and Compliance.** Dr. Theresa Mayer, vice president for research and innovation, offered the committee information on the university's obligations to research integrity and regulatory compliance. These regulations apply to human and animal subjects, environmental health and safety, conflicts of interests, export controls, and responsible conduct of research. Obligations span university administrative areas in pre and post-award circumstances (some of which reside under the vice president for administration). Increased complexity, changing regulations, and inconsistencies across federal and other agencies require a comprehensive view and approach to compliance. The university's growth in research will require updated electronic processes and improved operational coordination and oversight. Regulatory and financial integrity and compliance are two overarching areas with many sub-areas that require monitoring. As an example of the complexities associated with compliance, Dr.

Mayer shared the many federal, state, and university levels of approval and review associated with obligations to protect human subjects. Committee members suggested that board members receive updates on compliance issues each year. The committee agreed with a comprehensive view of the university's portfolio and will receive information from a report to be prepared by a consultant and with information from benchmarking with universities with a larger research program.

7. **Adjournment.** There being no further business, the committee adjourned at 6:00 p.m.

# The Virginia Agricultural Experiment Station and its Agricultural Research and Extension Centers



**Saied Mostaghimi, Ph.D.**

**H.E. and Elizabeth F. Alphin Professor**

**Associate Dean for Research and Director of Virginia Agricultural Experiment Station**

**College of Agriculture and Life Sciences**

**Virginia Tech Board of Visitors, Research Committee**

**June 4, 2017**

# VCE and VAES

- Virginia Cooperative Extension (VCE) and the Virginia Agricultural Experiment Station (VAES) make up Virginia Agency 229
- VCE and VAES work closely together to generate research-based knowledge and applications that addresses critical societal needs
- Share these discoveries with the public through education, extension, and outreach efforts.



# Virginia Agricultural Experiment Station (VAES)

- 1862 Federal Morrill Act, created land grants for education in agriculture and the mechanic arts
- 1887 Federal Hatch Act created the agricultural experiment station program with each state's land-grant institution to advance research for agricultural industry
- 1886 Virginia General Assembly created the VAES in anticipation of the Hatch Act



# Mission

**...to perform basic and applied research on agricultural, environmental, natural, and community resource issues related to the future needs of Virginia, the region, the nation, and the world. Research is designed to provide knowledge that will enhance the quality of individual and family life and the social and economic vigor of Virginia.**



# Diversity of Research

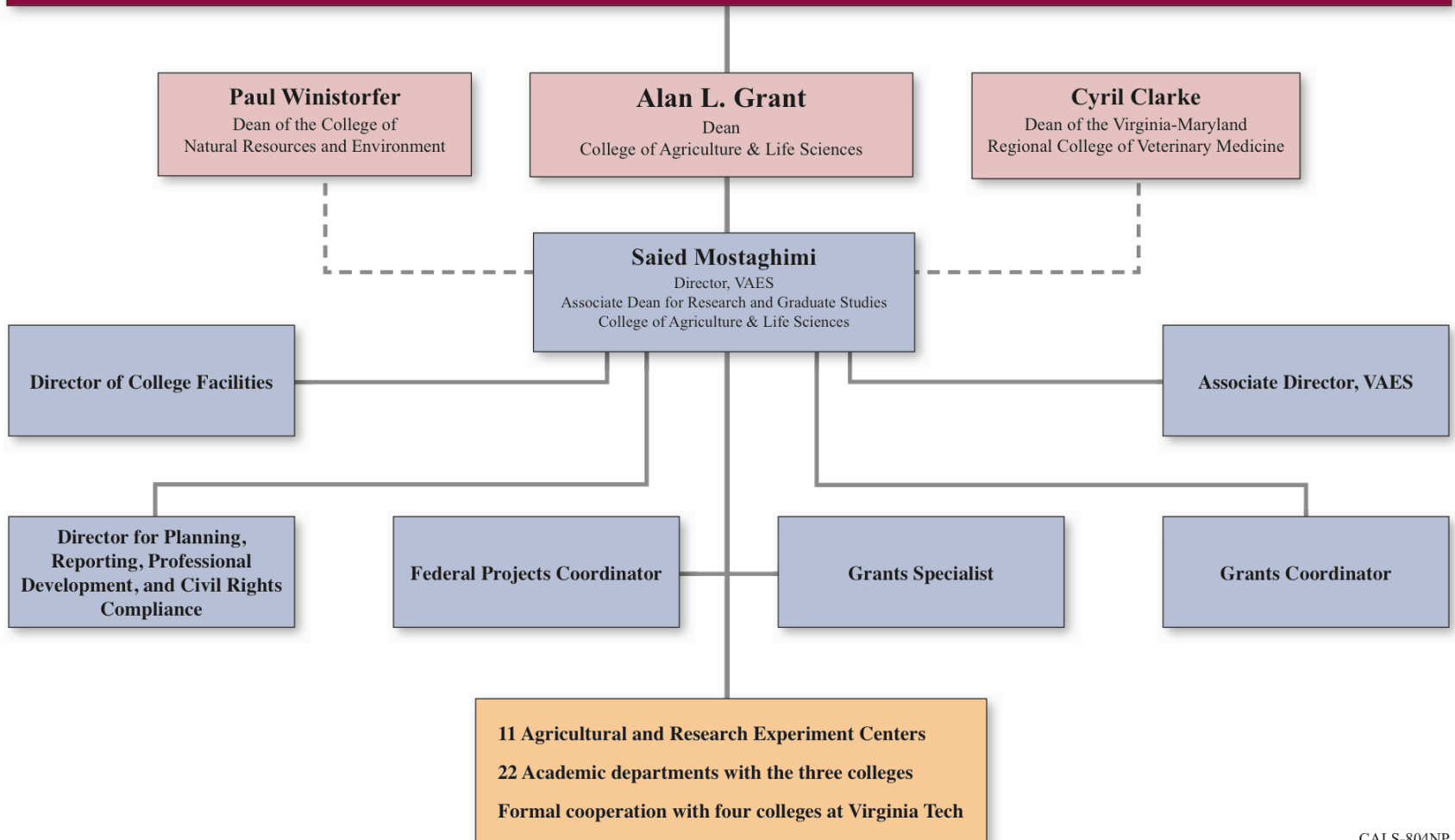
Research spans from the most fundamental areas of inquiry to applied problem solving efforts

- Crop variety development
- Chronic diseases (obesity)
- Sustainability, environmental policy, and natural resources
- Animal production, health and disease
- Biofuels and sustainable biomaterials
- Sustainable ornamental production





## Administrative Council for Extension and Experiment Station Research





# Scope and Budget

## Faculty in four colleges and at 11 ARECs

- Faculty: 158 FTE (head count: 313)
- Staff: 113 FTE (head count : 231)
- Total headcount: 544 people
- 12.5% at ARECs

## Budget \$113.6M (FY16)

- \$40.6M in federal and state funding
- \$69.1M in competitive grants and contracts
- \$3.9M in revenue generation
- Every state and federal dollar generates \$1.80 in external funding



# Discovery and Innovation Impact

- **Translational research for job and economic growth**
- **Past 5 years**
  - **111 invention disclosures**
  - **42 license and option agreements**
  - **212 patent applications**
  - **131 patents and certificates issued**
  - **3 start-up companies**

# NSF Ranking of Agricultural Sciences R&D Expenditure - 2015

TOTAL R&D Expenditure			Federally Financed R&D Expenditure		
Rank	Institution	X \$1000	Rank	Institution	X \$1000
1	Texas A&M	181,658	1	Illinois	42,524
2	Florida	167,641	2	Texas A&M	39,349
3	Davis	137,628	3	Davis	38,922
4	Illinois	130,410	4	Virginia Tech	36,843
5	Purdue	120,012	5	Penn State	35,718
6	Miss. State	106,463	6	Michigan State	35,431
7	Virginia Tech	104,627	7	Purdue	34,456
8	Michigan State	104,617	8	Florida	33,749
9	NC STATE	99,041	9	Oregon State	31,200
10	Cornell	91,244	10	Wash. State	28,256

# Agricultural Research and Extension Centers (ARECs)

## Virginia Agricultural Experiment Station



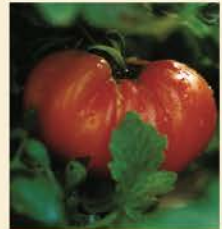
**Shenandoah Valley AREC**  
Steales Tavern



**Alson H. Smith Jr. AREC**  
Winchester



**Middleburg AREC**  
Middleburg



**Eastern Shore AREC**  
Painter



**Southwest Virginia AREC**  
Glade Spring



**Eastern Virginia AREC**  
Warsaw



**Southwest Virginia Aquaculture Research Center**  
Saltville

**Northern Piedmont Center**  
Orange

**Virginia Seafood AREC**  
Hampton



**Reynolds Homestead Forest Resources Research Center**  
Critz



**Southern Piedmont AREC**  
Blackstone



**Tidewater AREC**  
Suffolk



**Hampton Roads AREC**  
Virginia Beach





# Success and Impact

- **Crop variety development: small grains, soybean, peanuts, alternative crops**
- **Strategies to enhance the microbial safety of fresh fruits and vegetables**
- **Profitability and sustainability of livestock production**
- **Grape and wine production and industry**
- **Mitigating pathogens in recycled agricultural runoff water in nurseries**



## ***Salmonella* Outbreaks Traced to Delmarva**

- **2002-2011, five Salmonella Newport outbreaks with tomatoes from the Eastern Shore of Virginia (1/5 of total for the U.S.)**
  - **Cucumbers in 2014**
- **Outbreak strain recovered in irrigation ponds**
- **Tomato safety research symposium attended by researchers and agencies from across the U.S.**
- **Growers trained in partnership with Virginia Dept. of Agriculture and Consumer Services (VDACS) using Tomato Safety Initiative and manager training**

# Research on Microbial Water Quality and Strain Variability

- Multi-year study to evaluate the microbial quality of agricultural water used in pre-harvest production on the ESVA
- investigated *Salmonella* strain growth and survival dynamics in poultry litter amended sandy- and clay-loam soils
- Goal: to establish safe intervals between litter application and harvest time (FSMA Rule)



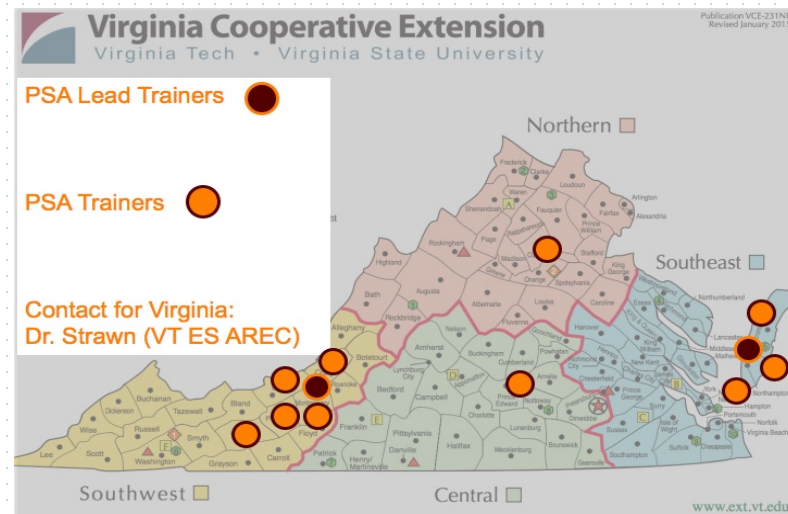


# Extension and Outreach on Food Safety Modernization Act (FSMA) Produce Safety Rule Training

- Train growers in Produce Safety Alliance (PSA) curriculum
  - Over 200 growers have participated in the full day training
- Educate VCE agents to assist in compliance efforts
  - Over 10 VCE agents trained and ready
- Member of the FSMA Southern Regional Training Center
  - Represents 13 SE states and 2 territories
- Partner with VDACS to guide educational outreach efforts
  - Developed fact-sheets and guides
  - Intro to FSMA PowerPoint (>450 stakeholders in 2015/16)



FSMA's Produce Safety Rule...  
Are you Covered or Exempt?



# Experiential Learning for Students

## Securing Our Food:

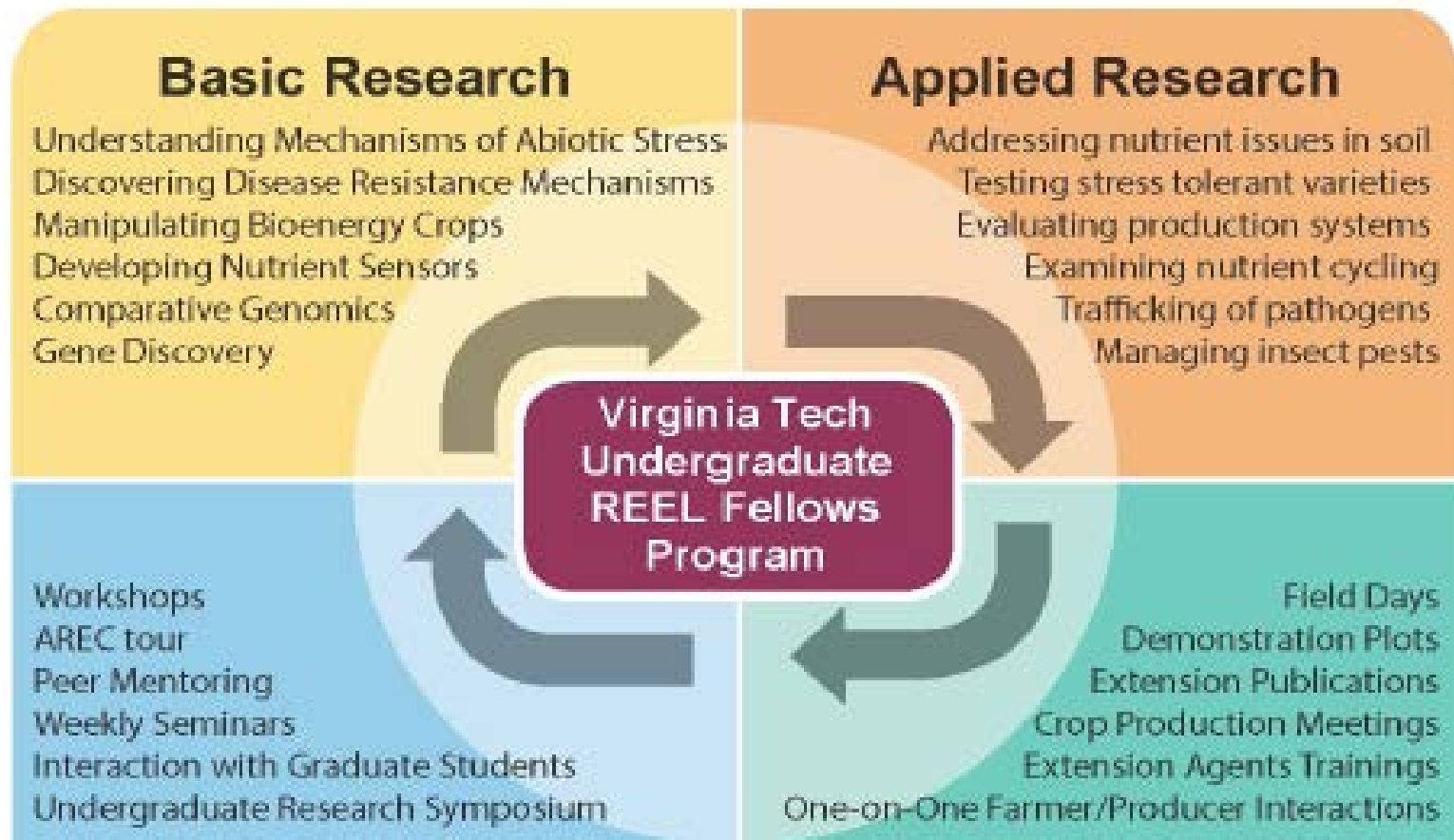
### A Translational Experience for Undergraduate Students in Plant Sciences

- Collaborations: biochemistry, Translational Plant Sciences Group, 3 ARECs
- Locations: Blacksburg, Suffolk, Painter and Virginia Beach
- Partners: WVSU, VSU, NSU
- Mentors: 18 at Blacksburg; 14 at ARECs
- Undergraduate participants: 8/year = 32
- Weeks/year students participate: 10



# Summer Undergraduate Research Program

Funded by National Institute of Food and Agriculture 2017- 2020



**Figure 1. Connections made and reinforced in the REEL fellows.**



## External Peer Review of ARECs

- *Research and Extension are well integrated and complementary*
- *The stakeholders and citizens of Virginia are well served by VT ARECs and the College Farm*
- *Our ARECs are the gems of agriculture, but infrastructure may not be keeping up with times*
- *There are areas where the... facilities and outdated equipment are already negatively impacting the ability of programs to move in different directions in response to emerging needs*



# Aspirations

**Global leader in translational agricultural and natural resources research  
increasing economic development opportunities and sustainability of natural  
resources**

- **Expand partnerships with legislators, community leaders, growers, commodity groups, and industry**
- **Enhance alternative revenue generation opportunities**
- **Continue focus on innovation and technology transfer to expand market opportunities**
- **Create more experiential learning opportunities for students**
- **Respond to emerging agriculture and natural resources issues in a timely manner**



# Challenges and Opportunities

- **Improve quality of campus and AREC research space**
- **Maximize funding for infrastructure development**
  - **Seek flexibility within the current building code for ag. buildings to address unique situations**
  - **Need for customized process for renovation of off-campus agricultural facilities**
- **Modern technologies**
  - **Enhance opportunities for increased collaboration with industry**
  - **Recruit and retain top talent**
  - **Provide more opportunity for student experiential learning**
- **Erosion of VAES-appropriated funds due to inflation and internal salary raises**
- **Need for sufficient resources and flexibility to address emerging needs**



**Thank You  
Questions?**

# Research Integrity & Compliance

Theresa Mayer, Ph.D.

Vice President for Research and Innovation

Virginia Tech Board of Visitors

Research Committee, June 4, 2017



# Regulatory Compliance

## Regulatory

Animal subject protections  
(IACUC)

Human subject protections  
(IRB)

Conflicts of interest

Export controls

HIPAA privacy laws

Invention disclosures and  
reporting

Scientific overlap

Scientific misconduct

Environmental Health & Safety

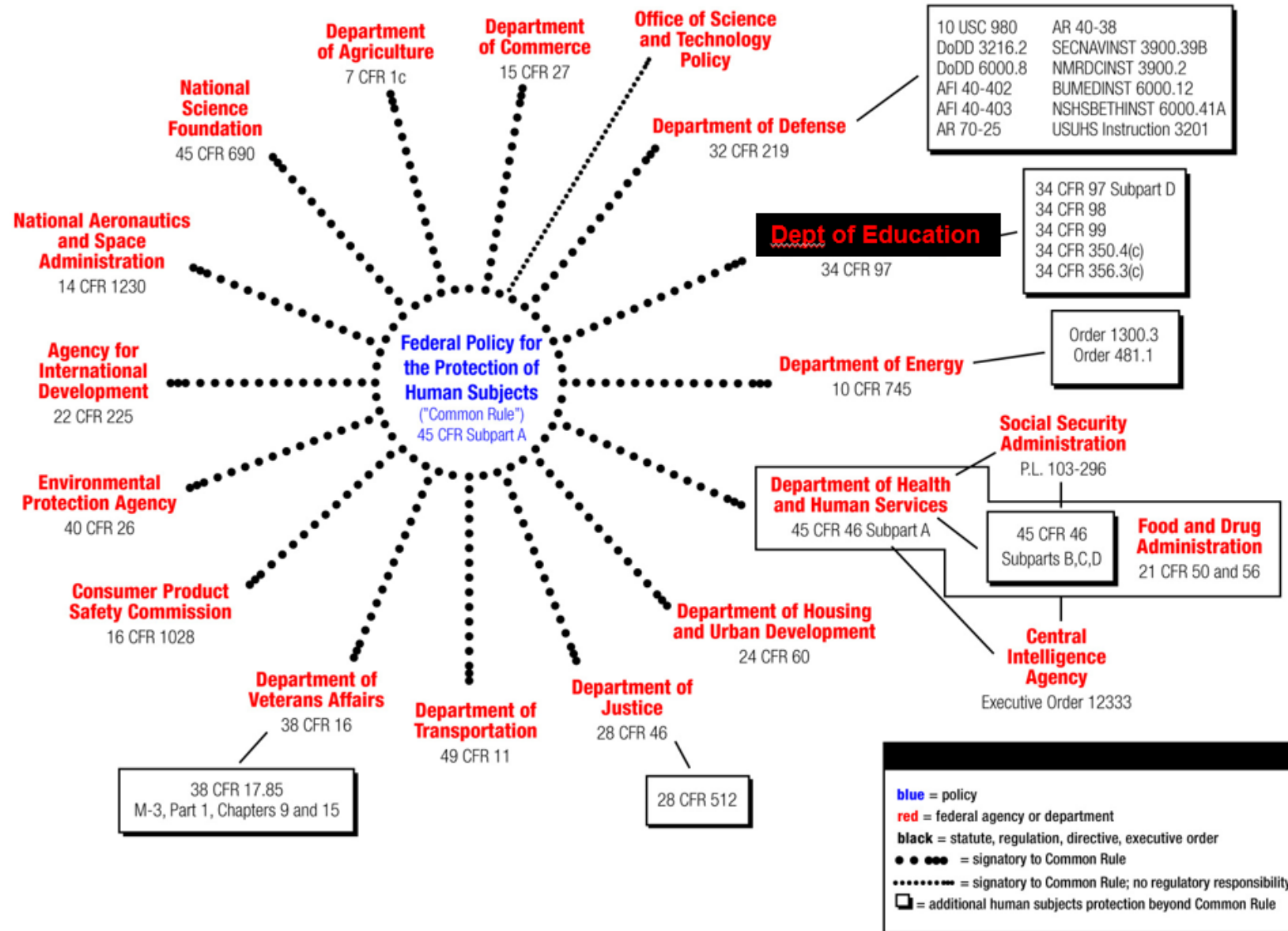
## Description

- Universities that perform research on human subjects are required to obtain the review and approval of the university's Institutional Review Board (IRB)
- The IRB approves the protocol, which is the outline or plan for use of an experimental procedure or experimental treatment. Review and approval must include all protocols involving humans, including externally and internally-funded research.

## Typical issues

- Protocols for externally or internally funded research involving human subjects not reviewed
- Protocols for continuing research not reviewed and approved when required
- IRB meetings: quorum not present; minutes incomplete
- Perceived slow, manual review process that delays project start/activation
- Mandatory training for key research personnel not performed
- Informed consent forms confusing or unused
- Inadequate HIPAA compliance
- Inadequate consideration of special populations (children, prisoners)

# Current Federal Regulatory Structure - IRB



## Description

- Universities that perform research on animal subjects (protocols) are required to obtain the review and approval of the university's Institutional Animal Care and Use Committee (IACUC)
- University animal facilities are responsible for the compliant purchasing and supplying of research animals, the care of the research animals, and the fiscal management for animal related charges including purchase of animals (usage), husbandry services (per diem), and labor (i.e. surgical procedures).

## Typical issues

- Animal research taking place without protocol approval; protocols not reflective of actual activity
- Misalignment between approved animal usage and actual usage
- Protocols for continuing research not reviewed and approved when required
- IACUC meetings: quorum not present, meeting minutes incomplete
- Mandatory training for key research personnel not performed
- Animal charges not properly allocated to benefiting research projects; per diem rates not representative of the actual cost
- Inconsistent review results for similar research procedures

## Description

- Management of public health, safety, and environmental protection resources associated with research at an institution
- May include:
  - Lab and Chemical Safety
  - Biosafety
  - Hazardous Materials Management
  - Radiation Safety
  - Environmental Programs

## Typical issues

- Lab and chemical safety training programs not in place or inadequate
- Insufficient checks and management resulting in safety issues
- Lack of true accounting for hazardous material stored across campus
- Improper storage or handling of materials by untrained staff

# Conflicts of Interest

## Description

- Situations in which financial or other personal considerations may compromise, or have the appearance of compromising, an employee's professional judgment with regard to the research they are conducting
- Regulations require investigators to disclose their “significant financial interests” that reasonably appear to be related to the Investigator’s institutional responsibilities

## Typical issues

- Inadequate policy or procedures
- Institution does not properly maintain records of all financial disclosures and all actions taken by the Institution with respect to each conflicting interest for at least three years from the date of submission of final expenditures report
- Conflicts were not appropriately identified and communicated to the sponsor
- Conflicts were identified and communicated but were not properly managed
- Outside activities exceed allowed limits, or create perceived conflicts

## Description

- Regulations that prohibit the sharing of certain information (e.g. military technology, technical data, trade secrets, etc.) with other countries and foreign nationals
- Applies not only to disseminating information outside borders (e.g., shipping equipment, lecture in foreign country) but also to transferring knowledge to a foreign national in the United States (“deemed export”)

## Typical issues

- Transferring equipment, technology, or something of value (could be physical or intellectual) that is export controlled without first applying for a license may carry significant penalties, including both civil and criminal, for the institution and the individual who ships the item.
- Managing campus visitors (students, guest lecturers, etc.) and their access to sensitive material or locations on campus
- Sponsored programs and/or collaborations undertaken with foreign entities without proper restricted party screening

**QUESTIONS?**