



Impacts for Applied Mathematics and Computational Science – Appropriations and Administration Outlook

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Lewis-Burke and SIAM

- Has represented SIAM in Washington, DC since 2001
- 28 policy experts
- Thirty-six clients exclusively composed of non-profit entities: universities, scientific societies, managers of large federal facilities
- Coordinate the SIAM Committee on Science Policy – connect with agency officials and advocate for research funding and sound research policy in Congress
- Goals of SIAM Advocacy
 - Conducting outreach to Congress to support funding and sound policy for applied math and computational science
 - Engaging the Administration and federal agency officials to inform future programs and enhance the profile of the SIAM community within relevant programs and scientific areas
 - Elevating the role of SIAM within the Washington, DC-based scientific/advocacy community and ensuring community advocacy reflects SIAM priorities

Trump Administration Impact on Research

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Trump Administration

- **New approach and new priorities** - Per the budget request, research broadly is not a priority; desired smaller government footprint with more details to be decided by Congress
- **Uncertain fiscal picture** - FY 2018 budget request; FY 2018 budget resolution; ACA repeal and replace; debt ceiling; tax reform
- **“Destabilized” federal workforce** - workforce reduction; agency restructuring, consolidation, elimination; fewer political appointees
- **Trump toolkit** - Executive Orders to rescind policies; Twitter; shadow cabinet; regulatory freeze
- **Fierce opposition** - Democrats; State Attorneys General; Scientific Community
- **Many relevant personnel have not yet been chosen**
 - Unclear future for President’s Council of Advisors on Science and Technology (PCAST) and White House Office of Science and Technology Policy (OSTP)
 - Key political appointments still vacant: e.g. DOD Undersecretary for Research and Engineering, DARPA Director, DOE Office of Science Director

Trump's Budget Request for FY 2018

- Full budget request released May 23
- Themes include reducing the size of the federal workforce, bureaucracy and burdensome regulations
- Abides by the overall discretionary spending cap for FY 2018 set in the Budget Control Act of 2011, which is \$1.065 trillion (\$5 billion below the FY 2017 spending cap)
 - ↑ DOD would receive a \$52 billion or 10 percent increase
 - ↓ Non-defense agencies are proposed for deep cuts, including NSF, DOE Office of Science, and NIH
- Proposes eliminating 19 independent agencies, including NEA, NEH, and IMLS
- Very few clear research priorities apart from budget cutting
- Just the first step towards appropriations
 - Congress is unlikely to support drastic cuts

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FY 2018 Budget Request vs Final FY 2017 Appropriations

Agency	FY 2016 Enacted Funding	FY 2017 Omnibus	FY 2017 Omnibus vs. FY 2016 Enacted	FY 2018 Budget Request	FY 2018 Request vs. FY 2017 Enacted
NSF	\$7.46	\$7.47	+0.1%	\$6.65	-11.0%
DOE Office of Science	\$5.35	\$5.39	+3.5%	\$4.45	-17.5%
DOE ASCR	\$0.621	\$0.647	+4.2%	0.722	+11.5%
DOD Basic Research	\$2.31	\$2.28	-1.4%	\$2.23	-2.1%
NIH	\$32.08	\$34.08	+6.2%	\$26.9	-21.0%

Obama Administration Priorities → Trump Administration

- Advanced Manufacturing → Sustaining Investments
- Big Data → Autonomy/AI/Advanced Computing
- Cybersecurity → Innovation While Protecting Privacy
- Biomedical Research → Cancer, Antimicrobial Resistance, Convergence
- Precision Medicine
- Healthcare Transformation → Replacement, Lower Costs
- Opioid Abuse
- Social Sciences + X → Embedded into teams; National security
- Mental and Behavioral Health
- Neuroscience → Alzheimer's, Aging, BRAIN
- Environment → Resilience
- Urban & Smart Cities → World-Class Infrastructure (Next Generation Wireless Technologies)
- International → Strategic Partnerships
- College Affordability → "Skin in the Game"
- Renewables → Energy Independence (Oil and Natural gas)
- Mission to Mars → Moon, Technology Development, Solar System Exploration
- Agriculture research → Feed the world population

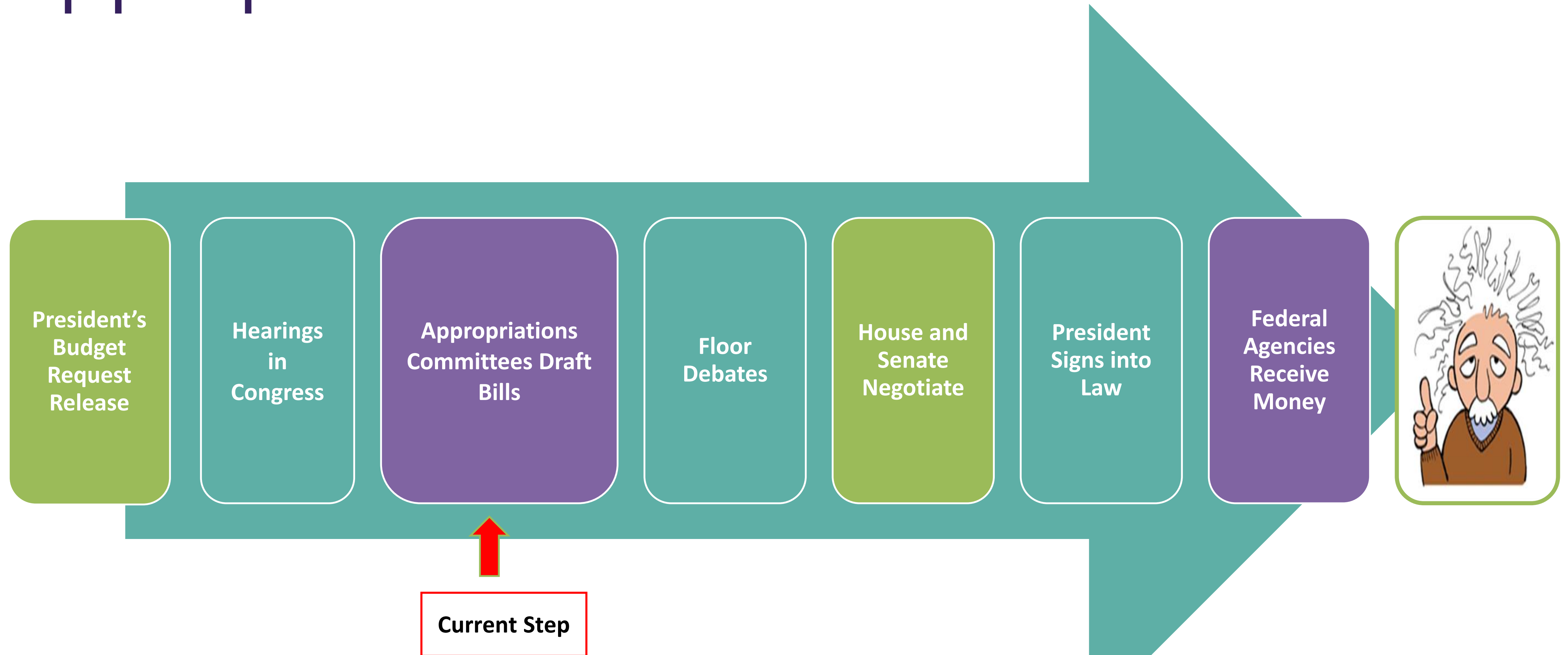
FY 2018 Appropriations Outlook

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Appropriations Process



Where We Stand Now for FY 2018

- Current Status
 - House Appropriations Committee has approved 7 of 12 bills including those that fund NSF, DOE, and DOD
 - Senate Appropriations Committee has not considered any bills yet
 - No bills have been considered on the floor of either chamber
- Sequestration is Major Unresolved Issue
 - 2 Year budget agreement expires at end of FY 2017, bringing back sequestration caps
 - Increasing momentum towards a new budget deal to raise both defense and non-defense spending
 - If deal fails, likelihood of a full-year CR at sequestration level (0.5% cut from FY 2017)
- Timeline
 - Debt Ceiling must be raised by early October – budget deal may be attached
 - Appropriations likely not finalized until late in the calendar year or early 2018

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FY 2018 Appropriations

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DOE Office of Science	\$5.39	\$4.45	-17.5%	\$5.39	--	?
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DOD Basic Research	\$2.28	\$2.23	-2.1%	\$2.28	+0.1%	?
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Agency Outlook

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Department of Energy

- Secretary Perry has emerged as strong exascale and computing supporter
 - Broad emphasis on both nuclear energy and national nuclear security – computing vital to both
 - Supercomputing, including exascale, big data, data analysis, and modeling and simulation in his top three priorities
- Continued strong congressional support for ASCR (up 51% since 2012)
 - Focus is on exascale and facilities – research was deeply squeezed in FY 2017
- Recent math and computational opportunities have focused on labs while encouraging university partners
 - Mathematical Multifaceted Integrated Capabilities Centers (MMICCs) Recompete – Proposals were due July 11
 - SciDac Institute Recompete – Proposals due July 26
 - New Quantum focus – Quantum Algorithm Teams – Proposals due July 21
- Applied Math program undergoing long-term strategic planning

Department of Defense

- Defense prioritized under Trump Administration but focus is not on research
 - Budget request for basic research small cut – better than Obama Administration
 - Emphasis on readiness and major programs – ship-building, missile defense
 - Strategic focus back to Middle East and ISIS
 - Cyber-warfare emphasized, starting with a comprehensive review with Joint Chiefs of Staff
- FY 2017 Appropriations is mixed bag for basic research
 - Increases for ARO (up 4%) and DARPA (up 9%), AFOSR flat, ONR suffers big cut (down 16%)
 - Overall much better than FY 2017 budget request
- Defense Research and Engineering organization underway per FY 2017 defense policy bill (NDAA)
 - leadership not yet named
 - Impact on Basic Research Office unclear
 - AFOSR, ONR, and ARL leadership remain in place
- New Secretary of the Air Force Heather Wilson has stated intention to prioritize basic and applied research

National Institutes of Health

- Budget request would cut NIH by \$6 BILLION , cap facility and administrative costs at 10 percent
- BUT, NIH enjoys strong bipartisan support—
 - FY 2017 appropriations includes \$2 billion increase over FY 2016 levels
- No leadership changes as Francis Collins held over as Director
- New \$250 M initiative to support early and mid career researchers
 - Focus on researchers seeking their 2nd NIH R01 grant
- *21st Century Cures Act*—signed into law December 2016
 - Precision Medicine Initiative, BRAIN Initiative, Cancer Moonshot, Regenerative Medicine
 - \$4.8 billion over 10 years; \$352 million in FY 2017
- Big Data leadership changes
 - Phil Bourne has stepped down; Patti Brennan, NLM Director, now leading big data efforts
 - Priorities and approach still TBD



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