# Department of Defense – Basic Research at the DOD

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**http://basicresearch.defense.gov**

## How does DoD define basic research?

DoD policy states that basic research is the *“systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts…”*

### DOD Standard Funding Categories

1. Basic Research
2. Applied Research
3. Advanced Technology Development
4. Advanced Component Development and Prototypes
5. System Development and Demonstration
6. RDT&E Management Support
7. Operational Systems Development

## Funding Across the DOD Basic Research Enterprise

* $2.5 Million (2020 data)
* Over 2/3 of funds to extramural programs
* Major funder of basic research in math, physics and engineering—3rd largest funder of basic research to universities.
  + DOD funds 39.6 % of engineering research, and 16% of physical sciences research at universities

## Ongoing Programs

### Cultivate and Collaborate - develop ideas and people

* Vannevar Bush Faculty Fellowship
* Minerva Research Initiative
* Multi-University Research Initiatives (MURIs)
* National Defense Science and Engineering Graduate Fellowship (NDSEG)
* Defense Established Program to Stimulate Competitive Research (DEPSCoR)

#### Vannevar Bush Faculty Fellowship

Program Goals

* Support transformative, high-risk, basic research
* Attract distinguished, productive, and creative candidates and sustain career-long association between Fellows and DoD
* Establish a group of experts that can study and advise DoD on emerging scientific and technical challenges
* Areas of interest also include: Fluid dynamics, physics, materials science, oceanography, engineered/synthetic biology and others with high potential

#### Minerva Research Initiative

DoD’s basic social sciences program to better understand the social and cultural forces shaping security

Program Goals

* Connect social science insights and methods to improve decision-making
* Build fundamental understanding of social, cultural, and historical forces that shape strategically important regions of the world
* Timeline: White papers due early summer. Full proposals due late summer. Awardees announced in fall. www.minerva.defense.gov

#### Multidisciplinary University Research Initiative (MURI)

Tri-service program that supports basic research teams intersecting with more than one traditional science and engineering discipline.

Program Goals

* + Educate scientists and engineers in the interdisciplinary areas important to national defense
  + Promote rapid technology transition directly to Service applications
  + Complement other DoD programs that support university research through the single-investigator awards.
  + MURI awards are 3-5 years, with teams funded up to $1.5M/year.
  + Timeline: White paper inquiries and questions late spring. White papers due early summer. Application inquiries and questions late summer. Applications due early fall.

Selected topics from previous funding call (*FY20*):

* Harvesting Oxygen from the Ocean
* Engineering Endosymbionts to Produce Novel Functional Materials
* Machine Learning and Physics-Based Modeling and Simulation

#### National Defense Science and Engineering Graduate Fellowship (NDSEG)

* The NDSEG fellowship supports graduate students in science and engineering disciplines of military importance. http://www.ndsegfellowships.org
* For three years: Covers full tuition, mandatory fees, & health insurance cost up to $1200/year, travel costs up to $5,00 for the fellowship duration. Fellows also receive a monthly stipend of $3200.
* Timeline: Applications open in September. Applications due in December. Panel Review in February. Awards announced in Late March/April.

#### Defense Established Program to Stimulate Competitive Research

DEPSCoR seeks to build the national infrastructure for research by

funding activities in science and engineering fields important to national defense***.***

* Congressionally-directed eligibility criteria for DEPSCoR: “States or territories that received less than 60% of 1/50th of the total DoD S&E research obligations to U.S. institutions of higher education (IHE) are eligible if a commitment to developing S&E research is demonstrated”
* Oregon is a DEPSCoR state
* Supplement Funding to existing service programs
* Collaborative DEPSCoR Competition
* Outreach and Education