# Research Reporting

# By Janet Killion Director of Research Reporting Sponsored Research Services June 22, 2023



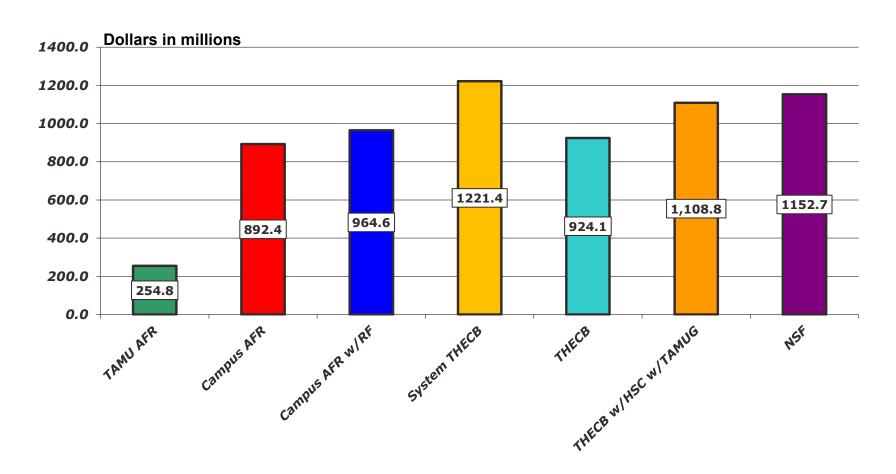
# Questions?



- What is our research number?
- Will we increase this fiscal year?
- How do we compare to other universities?
- It depends!



# What was TAMU's Research Expenditure Number for FY 2022?





# If all reports are correct, how do they reconcile to each other?

Column 1 TAMU AFR \$254.8	Column 2 TAMU & Research Agency AFRs \$892.4	Column 3  TAMU & Research Agency AFRs Plus Non-Salary RF AFR \$964.6	Column 4 SYSTEM THECB \$1,221.4	Column 5 THECB \$924.1	Column 6 THECB w/TAMUG and W/HSC \$1,108.8	Column 7 NSF \$1,152.7
Includes all TAMU research expenditures reported on TAMU Annual Financial Report. Costs include all research expenditures recorded in FAMIS for appropriated, institutional, and externally funded research funds. Also includes salary & wages on contracts administered by the Research Foundation for TAMU	Includes Column 1 plus all Agency AFRs. Includes: TAMU TAMUG TAMHSC AL RSCH AL EXT TEES TTI TVMDL TFS System Office Shared Services	Includes Column 2 plus the portion of the RF's AFR for non- salary research project expenditures	Includes Column 3 plus all other System members plus RF as an Affiliate for those institutions. This is total reported to Texas Higher Education Coordinating Board for the entire System.	Includes Column 3 less TEES Regional Divisions for work at other regional institutions; Report due to THECB by December 1. Includes TAMU and agencies. Does not include TAMUG or HSC since they report as separate institutions for THECB.	Includes Column 5 plus HSC and TAMUG	Includes Column 5 THECB Plus Waived IDC/Cost Sharing; number is greater than amount reported to THECB.

Dollars in millions



# What is included in research?

- Externally sponsored research projects (SRS)
- Research training grants
- Cost sharing for sponsored projects (research)
- Research equipment (but not land or buildings)
- Gift funds used for research purposes/projects
- Start up, bridge, or seed funds for faculty
- Internally funded grant programs
- Indirect costs funds or incentives
- Tuition and fees for graduate students working on research projects (external or internal), including tuition waivers
- Unrecovered indirect costs (difference between fully applicable research F&A rate and rate earned on project)

# Cost Sharing on Research Projects

- Important to capture cost sharing expenses with state funding being allocated based on R&D expenditures.
- Cost sharing expenditures are frequently faculty effort (salaries) recorded in accounts with Instruction function.
- Cost sharing must be recorded in the accounting system. We track cost sharing related to each sponsored project.



# What is <u>not</u> included in Research?

- Public service grants or outreach programs
- Curriculum development (unless included as part of an overall research project)
- R&D conducted by university faculty or staff at outside institutions that is not accounted for in your financial records
- Estimates of the proportion of time budgeted for instruction that is spent on research
- Capital projects (i.e., construction or renovation of research facilities). These projects are reported in another NSF survey on research facilities.
- Non-research training grants
- Unrecovered indirect costs that exceed your institution's federally negotiated Facilities and Administrative (F&A) rate



# Research Expenditure Reports

- National Science Foundation HERD Survey (Higher Education Research & Development)
  - Annual survey due at end of January.
  - U. S. universities
  - Maestro System has programmed an automated report to combine TAMU, TAMUG, HSC, and the agencies for annual reporting.
- Texas Higher Education Coordinating Board Research Expenditures – Sources & Uses
  - Public institutions report to THECB annually by December 1.
  - Determines allocations of funding



# **NSF HERD Survey**

- NSF rank is national ranking TAMU and agencies consider our benchmark with other U. S. institutions.
- NSF Survey amount is what we publish as our research expenditures.
- FY 2021 910 institutions ranked with annual expenditures ranging from \$150K to \$3.181 billion
- NSF announces rankings in late Fall, usually by December – Awaiting FY 2022 rankings.
- TAMU in Top 10 through 1998.
- TAMU was in Top 20 from 1999-2002, 2008-2010, 2014-2018, 2020-2021.
- TAMU is currently #16 (FY 2021)
- FY 2013 Began including HSC, TAMUG



# **NSF HERD Survey Form**

- Survey is 32 pages.
- NSF says it should take 64 hours to complete survey (12 entities to combine for TAMU). Truth – It takes longer than 64 hours!
- Expenditures by source of funds and fields of science (federal, state, business, non-profit, institutional, other universities)
- Foreign expenditures (foreign sponsors)
- Contract versus grant expenditures
- Medical school expenditures
- Human clinical trials expenditures
- Basic, applied, or development research expenditures
- Subrecipient dollars received and paid
- Type of costs salaries, wages, fringes, equipment, pass throughs, other direct costs, indirect, unrecovered indirect costs
- Research capital equipment federal, non-federal by fields of science
- Headcount of personnel by researchers, R&D technicians, R&D support staff, gender, citizenship, education level
- FTE count by researchers, R&D technicians, R&D support staff (full-time equivalent)



# TAMU Research \$

- Includes System Members (Campus Code = CC)
  - Texas A&M University, CC 02 (includes TAMU Qatar)
  - Texas A&M AgriLife Research & Extension, CC 06, 07
  - Texas A&M Engineering Experiment Station, CC 28
  - Texas A&M Transportation Institute, CC 12
  - Texas A&M Health Science Center, CC 23
  - Texas A&M Galveston, CC 10
  - Texas A&M Veterinary Medical Diagnostic Lab, CC 20
  - Texas A&M Forest Service, CC 11
  - Texas A&M University System Office, CC 01
  - Texas A&M Shared Services, CC 26
  - Texas A&M Research Foundation, CC 99 for above members
- NSF HERD Survey Report compiled by Division of Research (SRS Research Reporting) and submitted online to NSF.



# Preparing NSF HERD Survey

- Maestro Research Administration Systems programmed this very complex report.
- All System members (those part of TAMU reporting) are using this report.
- Calculation of unrecovered indirect costs.
- Elimination of subcontract payments between members to avoid "double counting" of expenditures.
- Includes tuition waivers for graduate students paid on research accounts/projects.
- Agencies that have both state and federal appropriated funds can allocate expenditures based upon FAMIS bank code attributes.
- Maestro report has saved time and created efficiencies for members instead of each System members preparing separate Excel spreadsheets for all the survey questions.

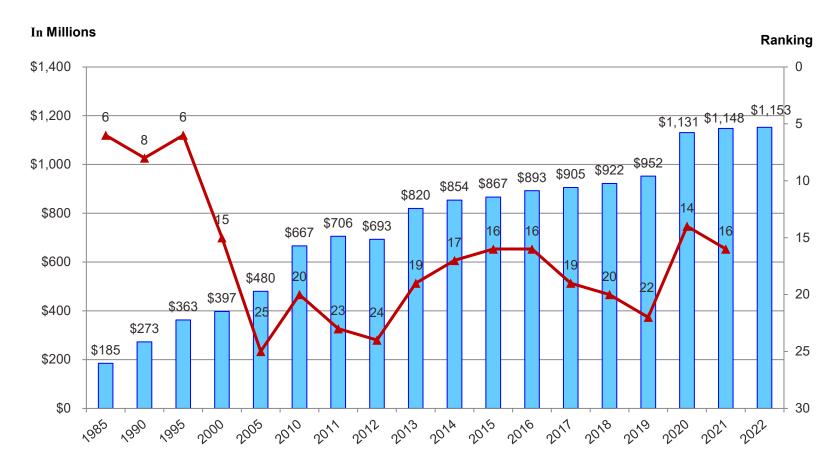
## 2022 Total Research Expenditures Reported for Texas A&M University

- TAMU Research Expenditures reported
  - \$1.153 Billion
    - \$ 1.097 Billion (Science & Engineering)
  - + \$ \_.056 Billion (Non-Science & Engineering)
  - = \$ 1.153 Billion (Total Research Expenditures)



#### **Texas A&M University (Including System Office & Agencies)**

# Rankings on Total NSF R&D Expenditures Since 1985



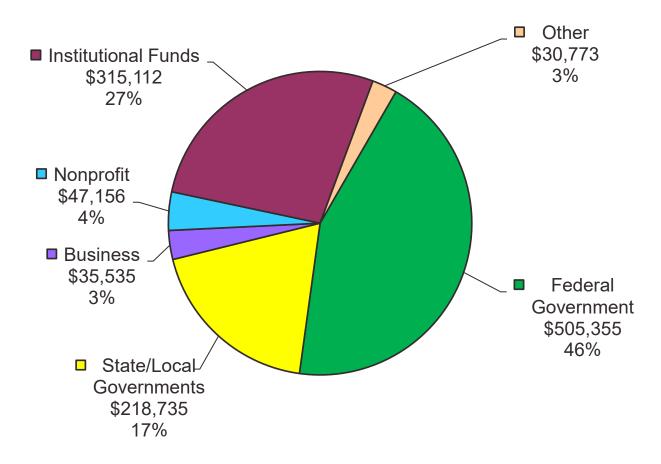


## National Science Foundation Higher Education Research and Development Survey Expenditures by Source of Funds as Reported for

**Texas A&M University (Including System Office & Agencies)** 

FY 2022 Dollars in Thousands

Total: \$1.153 Billion





## National Science Foundation Higher Education Research & Development Survey Expenditures by Source of Funds as Reported for

#### **Texas A&M University (Including System Office & Agencies)**

#### for FY 2022 and FY 2021 Dollars in Thousands

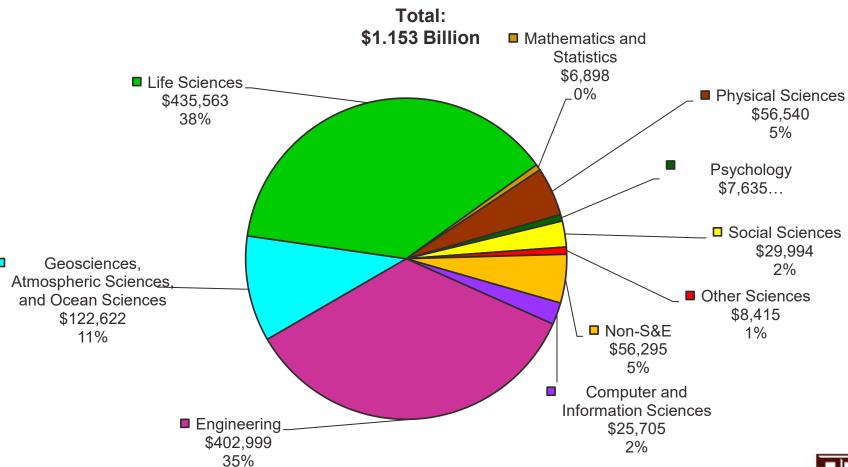
Q1: Expenditures by Source of Funds	FY2022	FY2021	\$ Change	% Change
a. U.S. Federal government	505,355	528,057	(22,702)	-4.3%
b. State and local government	218,735	198,483	20,252	10.2%
c. Business	35,535	32,978	2,557	7.8%
d. Non Profit Organizations	47,156	45,135	2,021	4.5%
e. Institutional Funds	315,112	313,192	1,920	0.6%
Institutionally financed organized research	233,327	222,733	10,594	4.8%
2. Cost Sharing	19,508	25,024	(5,516)	-22.0%
Unrecovered indirect costs	62,277	65,435	(3,158)	-4.8%
f. All other sources	30,773	29,875	898	3.0%
Total R&D Expenditures	1,152,666	1,147,720	4,946	0.4%



# National Science Foundation Higher Education Research and Development Survey Expenditures by Field of Science as Reported for Taxas A&M University (Including System Office & Agencies)

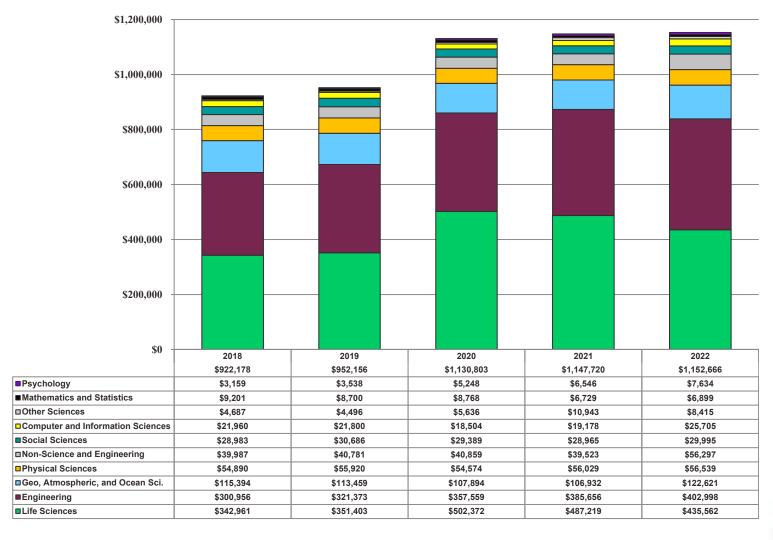
**Texas A&M University (Including System Office & Agencies)** 

FY 2022 Dollars in Thousands



# National Science Foundation Higher Education Research & Development Survey Texas A&M University & Agencies Total Expenditures by Field of Science

Dollars in Thousands





## National Science Foundation Higher Education Research & Development Survey Expenditures by System Member as Reported for

## Texas A&M University (Including System Office & Agencies) for FY 2022 and FY 2021

#### **Dollars in Thousands**

Total R&D Expenditures by Member	FY2022	FY2021	Change	% Change
Texas A&M AgriLife Extension	1,239	32	1,207	3788.0%
Texas A&M AgriLife Research	254,269	225,459	28,810	12.8%
Texas A&M University System	1,776	2,239	(463)	-20.7%
Texas A&M Health Science Center	134,992	224,237	(89,244)	-39.8%
Texas A&M Shared Services	1,345	1,127	218	19.3%
Texas A&M University	396,615	351,837	44,778	12.7%
Texas A&M University-Galveston	11,004	8,581	2,423	28.2%
Texas A&M Engineering Experiment Station	241,099	232,698	8,400	3.6%
Texas A&M Forest Service	2,938	2,832	106	3.8%
Texas A&M Transportation Institute	106,687	98,030	8,657	8.8%
Texas A&M Veterinary Medical Diagnostic Laboratory	701	647	54	8.4%
Total	1,152,666	1,147,720	4,946	0.4%

NOTE: Includes Texas A&M Research Foundation



# NSF Statistics by Top 20 Institutions FY 2021 Total R&D Expenditures

Johns Hopkins U (\$ 3.181 Billion) - Includes Applied Physics Lab with \$1.950B (university

- 1 affiliated research center)
- 2 U. California, San Francisco (\$ 1.710B)
- 3 U. Michigan, Ann Arbor (\$ 1.640B)
- 4 U. Pennsylvania (\$ 1.632B)
- 5 U. Washington, Seattle (\$ 1.489B)
- 6 U. California, Los Angelos (\$ 1.455B)
- 7 U. California, San Diego (\$ 1.425B)
- 8 U. Wisconsin-Madison (\$ 1.380B)
- 9 Stanford U. (\$ 1.274B)
- 10 Harvard U (\$ 1.254B)
- 11 Duke U. (\$ 1.238B)
- 12 Ohio State University (\$ 1.236B)
- 13 U. North Carolina, Chapel Hill (\$ 1.206B)
- 14 Cornell U. (\$ 1.184B)
- 15 Yale U. (\$ 1.165B)
- 16 Texas A&M U., College Station and Health Science Center (\$ 1.148B)
- 17 U. Maryland (\$ 1.142B)
- 18 U. Pittsburgh, Pittsburgh (\$ 1.135B)
- 19 U. Texas M.D. Anderson Cancer Center (\$ 1.125B)
- 20 Georgia Institute of Technology (\$ 1.114B)



# NSF Statistics by Top 20 Institutions FY 2021 Federal R&D Expenditures

- 1 Johns Hopkins U. (\$ 2,775M)
- 2 U. Washington, Seattle (\$ 1,046M)
- 3 U. Michigan, Ann Arbor (\$ 891M)
- 4 Georgia Institute of Technology (\$ 852M)
- 5 Columbia U. in the City of New York (\$ 831M)
- 6 Stanford U. (\$ 811M)
- 7 U. California, San Diego (\$ 801M)
- 8 U. Pennsylvania (\$ 792M)
- 9 Duke U. (\$ 777M)
- 10 U. North Carolina, Chapel Hill (\$ 748M)
- 11 U. Pittsburgh, Pittsburgh. (\$ 725M)
- 12 U. California, Los Angeles (\$ 721M)
- 13 U. Maryland (\$713M)
- 14 U. California, San Francisco (\$ 683M)
- 15 Yale U. (\$ 648M)
- 16 U. Wisconsin-Madison (\$ 647M)
- 17 Pennsylvania State U., University Park and Hershey Medical Center (\$ 623M)
- 18 Harvard U. (\$ 617M)
- 19 Washington U., Saint Louis (\$ 606M)
- 20 Cornell U. (\$ 592M)
- 28 Texas A&M U., College Station and Health Science Center (\$ 528M)



## Research Expenses by Federal Agencies



■ NASA ■ DOD ■ DOE ■ USDA ■ Other ■ DHHS ■ NSF



#### National Science Foundation Higher Education Research & Development Survey

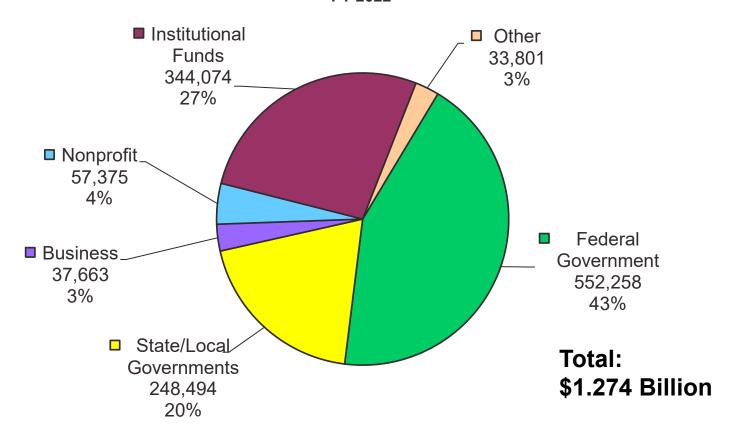
## Texas A&M University System Total R&D Expenditures

(In Thousands)

System Member / Fiscal Year	<u>2022</u>	<u>2021</u>	<u>Change</u>	<u>Percentage</u> <u>Change</u>
Texas A&M University & Agencies	1,152,666	1,147,720	4,946	0.43%
Prairie View A&M University	20,429	17,582	2,847	16.19%
Texas A&M University-Commerce	4,955	3,827	1,128	29.47%
Tarleton State University	20,056	17,729	2,327	13.13%
West Texas A&M University	9,438	9,920	(482)	-4.86%
Texas A&M University-Kingsville	23,451	23,578	(127)	-0.54%
Texas A&M University-Corpus Christi	36,014	30,500	5,514	18.08%
Texas A&M International University	4,486	3,740	746	19.95%
Texas A&M University-Texarkana	34	49	(15)	-30.61%
Texas A&M University-Central Texas	894	1,240	(346)	-27.90%
Texas A&M University-San Antonio	1,242	1,311	(69)	-5.26%
Total System	1,273,665	1,257,196	16,469	1.31%

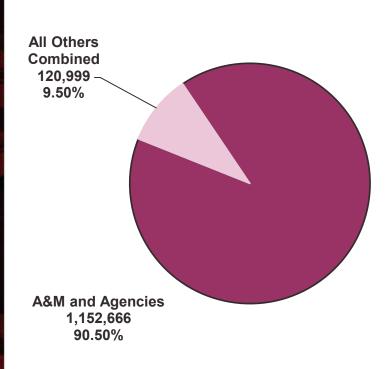


National Science Foundation
Higher Education Research & Development Survey
Texas A&M University System, All Members
Total R&D Expenditures by Source of Funds
FY 2022





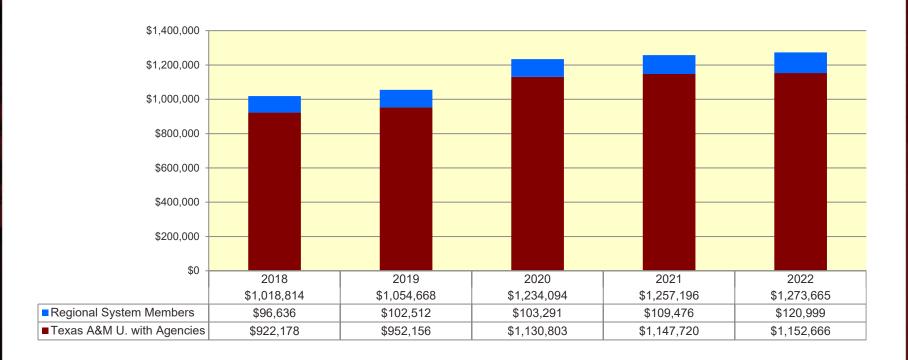
# National Science Foundation Higher Education Research & Development Survey Texas A&M University System Total R&D Expenditures FY 2022



System Member	Total R&D	% Change over Prior Year
Texas A&M University & Agencies	1,152,666	0.4%
Prairie View A&M University	20,429	16.2%
Texas A&M University-Commerce	4,955	29.5%
Tarleton State University	20,056	13.1%
West Texas A&M University	9,438	-4.9%
Texas A&M University-Kingsville	23,451	-0.5%
Texas A&M University-Corpus Christi	36,014	18.1%
Texas A&M International University	4,486	19.9%
Texas A&M University-Texarkana	34	-30.6%
Texas A&M University-Central Texas	894	-27.9%
Texas A&M University-San Antonio	1,242	-5.3%
Subtotal, All Regionals Combined	120,999	10.5%
Total Texas A&M University System Members	1,273,665	1.3%



# National Science Foundation Higher Education Research & Development Survey Total Expenditures as Reported for Texas A&M University System Dollars in Thousands



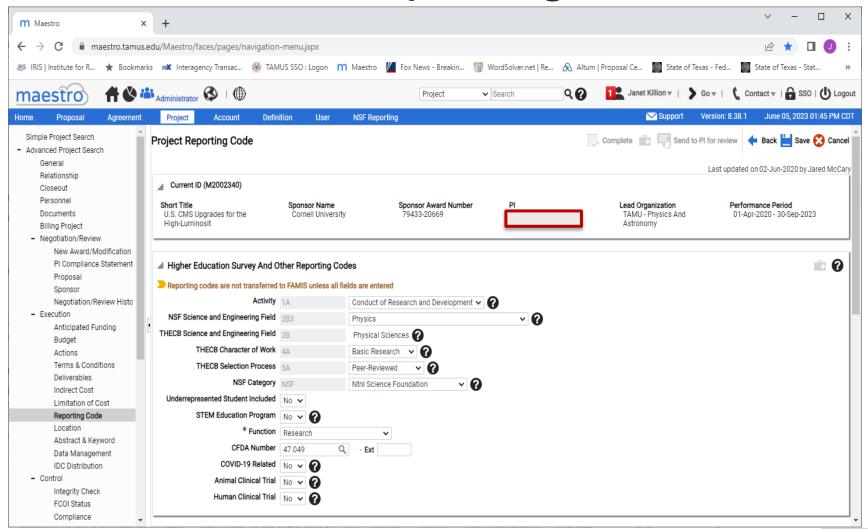


# Maestro and FAMIS Coding

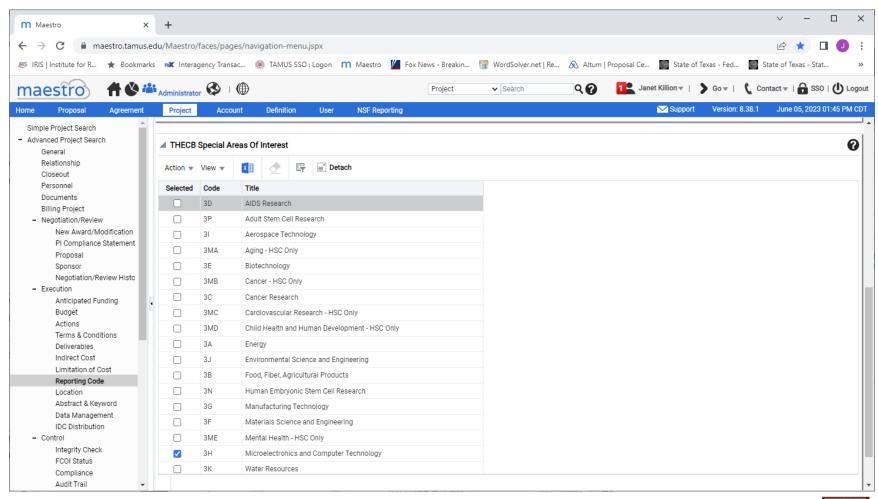
- Reporting Codes on R&D Projects
- Important for reporting of R&D expenditures, awards, analysis, other special data requests
- PI is asked to complete coding related to the project.
- Once proposal is funded, project is established and SRS will set up the project.
- Maestro Reporting codes transfer to FAMIS accounting system and affect expenditure reports.



# Maestro Reporting Codes

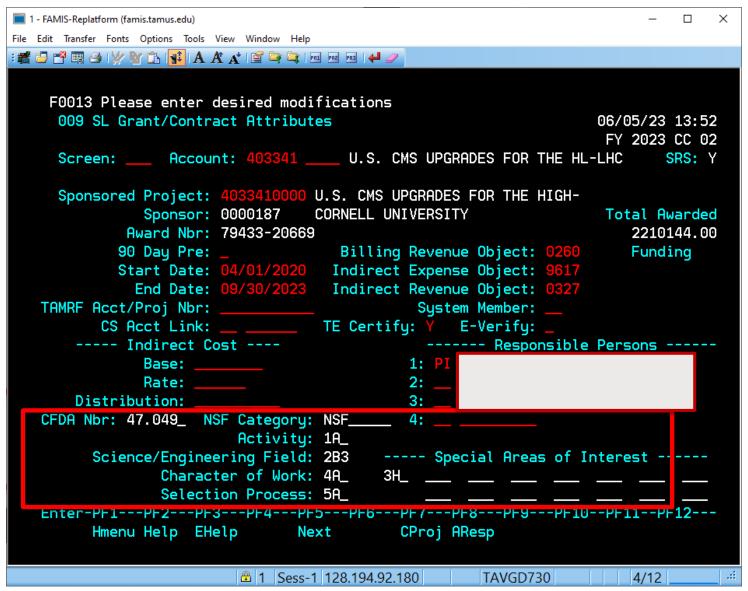


# Maestro Reporting Codes - THECB





# FAMIS Screen 009





# Activity 1A or 1B

- 1A This means project is classified as R&D – Research & Development.
- If account or project is coded 1A, it will be included in R&D reporting for National Science Foundation and THECB.

- 1B Project is not research, so it could be:
  - instruction
  - public service
  - academic support (library)
  - student services
  - institutional support
  - operations & maintenance
  - scholarships & fellowships



# What is R&D?

- Research Creative and systematic work undertaken in order to increase the stock of knowledge—including knowledge of humankind, culture and society.
- Development is systematic use of knowledge or understanding gained from research, directed toward the production of useful materials, devices, systems, or methods including design and development of prototypes and processes.
- Includes the training of individuals in research techniques where activities utilize the same facilities as other research and development activities.

# NSF S&E Field

- Need to classify research project by field of science (S&E = Science & Engineering)
- Field of science codes have been modified as NSF adds new disciplines. Revisions in 2016. Example of 2016 change: Anthropology is separate field, no longer part of Sociology.
- Non S&E fields are also classified and reported (education, law, humanities, visual & performing arts, business, communication, social work, library science, public admin.).



# Example of Disciplines - Engineering

- Engineering (Category for NSF and THECB reporting)
  - 2A1 Eng Aeronautical & Astronomical
  - 2A2 Eng Chemical
  - 2A3 Eng Civil
  - 2A4 Eng Electrical
  - 2A5 Eng Mechanical
  - 2A6 Eng Metallurgical & Materials
  - 2A7 Eng Other
  - 2A8 Eng Bioengineering/Biomedical
  - 2A9 Eng Industrial & Manufacturing



# THECB Special Areas of Interest

- Texas Higher Education Coordinating Board has requested that we report annual R&D expenditures by "special interest" categories.
- This attribute is <u>not always applicable</u> to a project. 3A – 3P
- Examples of Research: Energy, Cancer, AIDS, Biotechnology, Human Embryonic Stem Cell, Adult Stem Cell, Microelectronics & Computer Technology



# Character of Work

- 4A = Basic Undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts without any particular application or use in view.
- 4B = Applied Original investigation undertaken in order to acquire new knowledge. It is directed primarily towards a specific, practical aim or objective.
- 4C = Development Systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is directed to producing new products or processes or to improving existing products or processes.



# Examples of Character of Work

#### **Basic research (4A)**

A researcher is studying the properties of human blood to determine what affects coagulation.

A researcher is studying the properties of molecules under various heat and cold conditions.

A researcher is investigating the effect of different types of manipulatives on the way first graders learn mathematical strategy by changing manipulatives and then measuring what students have learned through standardized instruments.

#### Applied research (4B)

A researcher is conducting research on how a new chicken pox vaccine affects blood coagulation.

A researcher is investigating the properties of particular substances under various heat and cold conditions with the objective of finding longer-lasting components for highway pavement.

A researcher is studying the implementation of a specific math curriculum to determine what teachers needed to know to implement the curriculum successfully.

# Experimental Development (4C)

A researcher is conducting clinical trials to test a newly developed chicken pox vaccine for young children.

A researcher is working with state transportation officials to conduct tests of a newly developed highway pavement under various types of heat and cold conditions.

A researcher is developing and testing software and support tools, based on fieldwork, to improve mathematics cognition for student special education.



# Selection Process

- 5A = COMPETITIVE, PEER-REVIEWED Proposal is submitted to sponsor and will be competitively reviewed and evaluated with other submissions before an award is made.
- 5B = NEGOTIATED OR OTHER Funding or contract has been awarded to PI without competitive submission of proposal and review by the sponsor.



# Other Reporting Attributes

- STEM STEM is an educational program developed to prepare primary and secondary students for college and graduate study in the fields of science, technology, engineering, and mathematics (STEM).
- Underrepresented Student Included
- COVID-19 Related
- Animal or human clinical trial



# Other Reporting Attributes

- Function of Project NACUBO functions for Annual Financial Reporting (AFR) by University or agencies (Is project research, public service, instruction, or other sponsored activity?)
- Assistance Listing Number (formerly known as CFDA – Catalog of Federal Domestic Assistance) – Required for reporting of federal expenditures for variety of reports and requests.



# Researcher – Responsible Person

- Responsible person listed on FAMIS account or support account determines whether individual PI can view/see the financial account in Maestro.
- If you think you should view an account but are not seeing it, then you should verify with your SRS project administrator or department business administrator if you are listed as Responsible Person.



# Resources

- Link to NSF R&D Data Tables, <u>http://www.nsf.gov/statistics/herd/</u>
- Division of Research, Research by the Numbers, <a href="https://vpr.tamu.edu/about-the-division/fact-sheets/">https://vpr.tamu.edu/about-the-division/fact-sheets/</a>
- THECB Historical Research Expenditures
   Reports http://www.txhighereddata.org/index.cfm?objecti
   d=F5436150-1B78-11E9-BF6D0050560100A9



# Questions - Research Reporting

Sponsored Research Services – Research Reporting

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