CPI Subcommittee 3 –Improving Core Labs and Resources 2020 Update

Members (representation):

Kayla Bayless (Medicine), Candice Brinkmeyer-Langford (CVM), Craig Carpenter (AgriLife Extension), Mike Hall (Science), Christian Hilty (Science), Steve Maren (Liberal Arts), Pamela Plotkin (Geosciences), Brendan Roark (Chair)(Geosciences), Alexei Safonov (Science), David Stelly (COALS), Aaron Tarone (COALS), Lee Tarpley (AgriLife Research)

February 12th 2020 CPI General Meeting

SUMMARY

The Subcommittee took on the charge of identifying and addressing barriers to improving current core labs and resources. Considerable discussion led to the following four recommendations to improve the success of core labs, which are vital to the research and education missions of the Texas A&M Research community.

I. **DEFINE AND CATEGORIZE CORE FACILITIES**

II. **ALIGN CORE FACILITY ACTIVITIES AND SERVICES WITH THE TEXAS A&M UNIVERSITY MISSION TO PROVIDE TRAINING AND INNOVATION**

III. **DEVELOP AN ADVOCACY COMMITTEE TO PROVIDE SUPPORT AND CONSTRUCTIVE FEEDBACK**

IV. **DETERMINE A FEASIBLE FINANCIAL MODEL**

I. DEFINE AND CATEGORIZE CORE FACILITIES

Rationale: Proper definition, categorization and organization of our diverse core facilities will enhance their management, user awareness, usage, impact and external fundability.

Committee Recommendation: Assemble a committee or working group of relevant stakeholders, including the Division of Research (VPR), University Research Council (URC), CPI members, core directors, and users to define and categorize Core Facilities. This definition and categorization should be shared widely with the Texas A&M Research community.

III. DEVELOP AN ADVOCACY COMMITTEE TO PROVIDE SUPPORT AND CONSTRUCTIVE FEEDBACK TO CORE FACILITIES

Rationale: Advice and advocacy by a balanced committee could enhance development, integration, management, funding, functional relevance and evolution of cores of the Texas A&M Research Community.

Core Facilities and the greater institution must be responsive to stakeholder needs. We recommend the establishment of a Core Facilities Advocacy Committee (and/or Advisory Council) including Core Facilities directors, managers, and users along with appropriate University and College level administrators (e.g. VPR and URC). Some of the issues and actions that such a group could help address include:

Themes I and III PROGRESS

Core Facility Directors' Retreat
Thematic Organization of Cores and Providing a Voice to Improve Function Friday,
November 8, 2019 Rudder Tower 401

• Day long retreat hosted by the Vice President for Research (Dr. Jamie Gunlan and Dr. Costas Georghiades)

Important Outcomes

• Development of master list of research cores
• Formation of a Council of Core Facilities Directors

Texas A&M Core Facilities – Thematic Areas

57 TOTAL CORES

1) Microscopy and Imaging – 7 Cores
All cores having microscopy and imaging as the primary activity.

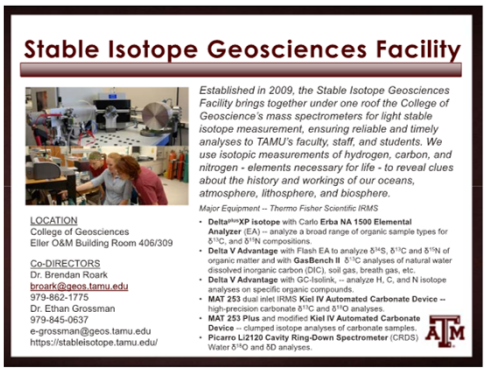
2) Integrated Biological and Medical Translational – 22 Cores
All cores whose focus is various aspects of human, animal and plant health, including precision medicine, precision agriculture, and microbiome.

3) Materials and Fabrication – 9 Cores
All cores whose focus is various aspects of materials and manufacturing, including materials characterization, mechanical testing, nanofabrication, and therapeutics.

4) Data Informatics and Computation – 6 Cores
All cores whose focus is various aspects of bioinformatics and computation, including genomics, high throughput screening, molecular simulations and biological informatics

5) Chemical Science Technologies – 13 Cores
All cores whose focus is various aspects of chemical and molecular analysis, including NMR, mass spectrometry, protein analysis, and isotopes.

Texas A&M Core Facilities



- Each core submitted a description of the facility using a uniform template published in a booklet which will be distributed in hard copy and pdf form.
- Remaining challenges – list of facilities on a central webpage need to be updated and information matched

  (https://tamu.corefacilities.org/landing/276#/cores)

Core Facility Director's Council

- **Seven members, one from each theme, and two at large to capture the diversity of the cores.** Decided to have two from the Integrated Biological and Medical Translational theme due to its size.
- Term for each Council Member will be two years.
- Working on developing a mission and charge for the council.
- Imagining the Council will discuss and promote policies and best practices related to:
  - -- Staffing
  - -- Maintenance contracts
  - -- Visibility
  - -- Core facility sustainability

Core Facility Director's Council

Member	Core Facility	Thematic Area
Sarah Brooks	Center for Atmospheric Chemistry and the Environment	Chemical Science Technologies
Lawrence Dangott	Protein Chemistry Laboratory & Integrated Metabolics Analysis Core (IMAC)	Integrated Biological and Medical Translational & Chemical Science Technologies
Miladin Radovic	Materials Characterization Facility	Materials and Fabrication
Kristen Maitland	Microscopy and Imaging Center	Microscopy & Imaging
Alexandra Trott	Rodent Preclinical Phenotyping Core	Integrated Biological and Medical Translational
Charlie Johnson	Genomics and Bioinformatics Service	Data Informatics and Computation
Peter Davies	High Throughput Research and Screening Center	Integrated Biological and Medical Translational

II. ALIGN MISSION OF CORE FACILITIES WITH THE TEXAS A&M UNIVERSITY MISSION TO PROVIDE INNOVATION AND TRAINING

Rationale: Our investments should help us address our goals.

The committee feels strongly that a significant part of the missions of University Core Facilities should be to collectively support the mission of the University.

Mass Spectrometry Collaborative Core
An example of how multiple core facilities working with CPI, the Chancellor and the VPR can achieve these goals.

II. Mass Spectrometry Collaborative Core

The Mass Spectrometry Collaborative Core (MSCC) at Texas A&M is a virtual core user facility recently created based on a $5M Chancellor Research Initiative allocation working with CPI and VPR.

• Three separate components (Applied Mass Spectrometry (AMS), Mass Spectrometry for Isotope Analysis (MSIA), Chemistry and Biochemistry Mass Spectrometry Center (CBMSC)), each include several individual laboratories.

• Expertise in a range of mass spectrometry techniques allows researchers to tackle a broad range of research.

• Each laboratory is staffed by technical experts who can provide training to students and faculty

II. Mass Spectrometry Collaborative Core

MS Collaborative Core and its three subunits.		
Applied Mass Spectrometry (AMS)	**Mass Spectrometry for Isotope Analysis (MSIA)**	**The Chemistry and Biochemistry Mass Spectrometry Center (CBMSC)**
Geochemical and Environmental Research Group College of Geosciences	Stable Isotope Geoscience Facility College of Geosciences	Chemistry College of Science
Office of the State Chemist Texas AgriLife Research	Radiogenic Isotope Geoscience Laboratory College of Geosciences	Metabolomics College of Engineering
The Flavor Chemistry Laboratory College of Agriculture and Life Sciences	Stable Isotopes for Biosphere Science College of Agriculture and Life Sciences	Biological MS (ILSB) College of Science
		Protein Chemistry Lab College of Agriculture and Life Sciences

II. Mass Spectrometry Collaborative Core

IONS @ WORK 2020 SYMPOSIUM
FRIDAY, FEBRUARY 21, 2020
Texas A&M University | Mitchell Institute | Hawking Auditorium
A symposium celebrating mass spectrometry at Texas A&M University

Featuring Keynote Speakers
Erin Baker | *Associate Professor of Chemistry, NC State University*
Daniel Breecker | *Associate Professor of Geological Sciences, UT Austin*
Katherine Freeman | *Evan Pugh Professor of Geosciences, Penn State*
Keri Hornbuckle | *Donald E. Bently Professor of Engineering, University of Iowa*

and Invited Speakers
Chris Kerth | *Associate Professor of Meat Science, Texas A&M University*
Arthur Laganowsky | *Assistant Professor of Chemistry, Texas A&M University*
Gary Patti | *Associate Professor of Chemistry, Genetics and Medicine, Washington University @ St. Louis*
Michael Shields | *Geochemical and Environmental Assistant Research Scientist, Texas A&M University*
Crayton Yapp | *Professor of Earth Sciences, Southern Methodist University*
Yige Zhang | *Assistant Professor of Chemical and Geological Oceanography, Texas A&M University*

*Also featuring **poster presentations** in the application of mass spectrometry to problems in chemistry, geology, climate change, oceanography, ecology and paleoecology, water and soil science, biology, and more.*

IV. ESTABLISH FINANCIAL MODEL(S) FOR CORE FACILITIES

Rationale: Ensuring the long-term financial health of Core Facilities is critical to their success.

- Develop models by which various types of Core Labs could be expected to address financial needs.
- Continue the RDF to promote acquisition of state-of-the-art technologies with a wide user base to support interdisciplinary research.
- Utilize a portion of RDF or other University funds to maintain ongoing cores with a focus on maintaining full-time technical expertise, and service contracts.

Drs Threadgill and Roark serving on committee reviewing the Rate Study process to improve this process.