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Establishing a Shared Instruments Program

From Chaos to Order

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Be Boulder.
University of Colorado Boulder

A Neglected Niche

Many academic institutions lack a small- to mid-scale instrument sharing program. Researchers therefore use valuable research time and funds tracking down shared or purchasing new instruments. On CU Boulder campus, when instruments of this scale are shared between labs, it is limited to:

- Proximity between labs
- Existing partnerships
- Word-of-mouth
- Social structures

Further, we found researchers often chose not to share their lab's instruments due to issues related to:

- Training
- Scheduling
- Managing repairs/replacement
- Contamination/cleanliness

Establishing the BioCore

A small- to mid-scale instrument sharing program was established in May, 2018 to enhance sharing within three departments: Molecular, Cellular and Developmental Biology, Ecology and Evolutionary Biology, and Integrative Physiology. The purpose is to benefit research, efficient instrument utilization and improved lab space utilization.

Initial resources provided for this program:

- Lab space
- Storage room
- Single-staff salary

Steps developed and followed to establish the instrument sharing program

Inventory instruments in all departments	Every lab visited and <u>every</u> instrument (3,833) entered into searchable database
Secure shared laboratory space	Laboratory space needed for shared instruments
Analyze needs of departments	Determine resources that are in demand and excessive
Define services	Develop services to benefit researchers and strengthen BioCore infrastructure
Instrument intake	Begin intake of unique and common instruments
Build relationships	Build/maintain positive relations with departmental researchers and staff

In the First 18 Months

3,833 Instruments tracked across three departments

60 + Researchers utilizing instruments & services

$850,000 Cost avoidance for instrument purchases

2 Shared labs managed by the BioCore

>2,000 ft2 of lab bench and floor space freed up in PI labs

BioCore Services

Procure Instruments	Admin. Support	Campus Planning	Lab Management	Property Accounting	Compliance
Cost Sharing of Purchases	Streamlined Interactions	Shared Lab Design	Instrument Training	Campus Controller's Office	Office of Contracts & Grants
Existing Instruments	Bureaucratic Burden	Space Utilization	Maintenance & Conflict Resolution	CU Distribution	Grant Recipient

Researchers

Administrators

Benefits to the University

Single Point Contact	• Gain access to instruments across campus • Instrument disposal, transfer, joint-purchases
Needed Instruments	• ~4,000 instruments tracked between 3 departments • Needed instrument can be requested for sharing
New Faculty (and existing)	• Instruments available for immediate use • Instruments can be moved directly to faculty lab
Students (Undergraduate - Graduate)	• Decrease instrumentation limitations of PI's lab • Training for all shared instruments
Cost Avoidance	• Reduce redundant instrument purchases • Cost-sharing efforts for purchasing new instruments
Time Savings	• Single email to connect researchers to instruments • Time and energy to track down instruments handled by BioCore, freeing up researcher time

Single Point Contact	• Freed up FTE can be applied to other efforts • Organizational structure simplified
Compliance	• Instrument purchasing, sharing and removal • NSF, NIH, state, federal contract/grant policy assistance
Instrument Database	• Biennial audit performed by BioCore for departments • BioCore database of instruments is more accurate
Surplus/ Disposal	• All departing instruments vetted for recirculation • Instrument disposal tasks handled by BioCore
Cost Avoidance	• Reduction of service contracts/3rd party maintenance • Efficient use of campus space and energy
Time Savings	• Admin can contact BioCore rather than 60+ faculty • Streamlined and uniform processes

Instrument Intake Process

Instruments are pulled in to the shared program in three main ways:

1. Instruments no longer needed in PI labs that are destined to be disposed of or given away are vetted for continued usefulness
2. All new purchases of Capital Equipment are tracked as they enters departments
3. When faculty retire, move labs, or are organizing laboratory purges, lab cleanouts are performed

Incoming instruments

BioCore Manager

Instruments assessed for:

- Functionality
- Immediate need
- Future demand
- Repairability

Shared labs | PI labs | BioCore Storage | Dispose

Future Directions

With the success of the BioCore, the program is expected to expand across CU's Boulder campus in the following ways, dependent on overlap of research and location on campus:

1. Integrate additional departments:
   - Psychology and Neuroscience
   - Biochemistry
   - Chemistry
   - Geological Sciences
   - Environmental Sciences
2. Repeat program design in department clusters:
   - Biochemistry
     Chemistry
     Chemical & Biological Engineering
   - Physics
     Geological Sciences
     Atmospheric & Oceanic Sciences
   - College of Engineering Departments