College Faculty Forum
December 16, 2024

Important things to consider for the new building:

- Must have a budget to pay for the technology and equipment to support high-end active teaching practices
- Must have ITS technical support, which includes specialized people with experience in GIS, computing, visualization (!!)
- Must have budget to maintain facilities and a plan for when equipment gets replaced
- Must have a building manager to help coordinate activities and for safety considerations (e.g., hazardous waste management)
- Safety concerns also require some spaces that are not open and accessible to students
- Must have process to facilitate developing collaborative/interdisciplinary courses across disciplines/academic units and compensation/teaching credit structure for faculty (maybe from Provost since the idea is to foster inter-unit collaboration)
- Make sure that the spaces/centers we propose allow undergraduate students to learn; some proposed ideas are for higher-level facilities that faculty could not support well because we are not a biotech company/R1 institution, etc. (our students are learning on a more basic level): CRISPR likely falls into this category…
- Make sure the space is one where faculty want to teach, and where students want to learn, and that the building can be used as a recruiting tool
- The building itself should be constructed as a learning tool (useful for engineering, the sciences, sustainability, experimentation). This potentially includes adjacent spaces (e.g., part of the "landscaping") and the roof (e.g., green space, equipment to teach about sustainable power generation, or a telescope dome on the roof).
- While many ideas for teaching in specialized areas are presented, we still need space for basic labs that teach conceptual foundations.

Categories of spaces:

<u>Larger spaces that support:</u>

- **Virtual Spaces Visualization auditorium** (planetarium, geographical rendering, 3D visualization, biological and physical models, e.g., SolidWorks designs, virtual tours of real spaces, possible connection to VR in other aspects)
- **Geospatial center** (GIS)- should be connected to a data visualization/VR space (needs technical support!)
- **Exhibits hall** for poster/project presentations, a larger lecture space
- **Design engineering**, materials engineering and testing (collaborative with sciences and engineering (e.g., instrumentation like electrodes or spectrometers could be designed and built for use in project-based labs))
- **STEM communications center**: area where students can do 3D printing, poster printing, and putting together (building) any materials needed to present/share their class project/research findings/ complete demonstrations

Teaching labs:

- **Neuro-collaborative suite** that also connects to visualization, human and animal behavior, biology, biophysics, and bioengineering
- **Planetary health suite** to teach about (restorative) environmental engineering, microbiology, sustainability, pollution remediation (have associated wells, and stream, seismogram, soil profiles, etc. to allow a "living" classroom that environmental scientists and engineers can use). Suite expands to teach about habitability beyond Earth, drawing on astronomy, chemistry, biology, and geology disciplines.
- **Biomedical suite** with virtual cadavers that allow for scientific testing and visualization such as for prosthetic development, instrumentation that measures various cognitive and physiological responses to stressors, and ways for students to see those responses (screens around the room). Motion capture devices (e.g., cameras) could be used and coupled to movement modeling allowing collaboration between anatomy and physiology and physical sciences and engineering.
- **Biotech suite** that would encompass genome sequencing, biomedical engineering, CRISPR (note this needs dedicated full-time lab technician support, and may not be best use of resources), cell culture hoods, RNA set-up spaces, pharmacology (binding studies) and connections to health sciences (this also connects to biomedical suite above).
- **Computer labs** teach statistics, data sciences, and predictive modeling with high performance computing (needs technical support!)
- **Color lab** to teach about energy and color (can learn about it from engineering, physics, and chemical perspective, learn about consequences to organisms (biology))
- **Food science classroom** to teach the science of cooking courses, design of coffee classes, and support the food sciences minor; food microbiology
- **Multiscale imaging center** with advanced microscopy instruments (needs technical support). Lab with microscopes having cameras all connected to a data visualization platform, and locked cabinet spaces to store these scopes/cameras when not in use.
- **Molecular suite** (spans biotech/genomic/biomedical described above and could probably be folded into the above categories)
- **Materials science suite** that would draw together math, physics, engineering, chemistry along with architecture.

Classrooms:

- Need to support active learning, and should have modular furniture with flat desks that can be moved into groups, with access to laptops and iPads, and the appropriate software
- Some rooms with circle tables that are easy to move for flexibility, with spaces that have lots of whiteboards
- Collaborative computer lab with tables that group computers together with access to lots of plugs
- Not all classrooms should have transparent walls

Support spaces:

- Pre-college STEM education center
- Building manager space
- Chemical storage and waste shed space that are highly visible to expose students to regulatory and waste management aspects of science
- Space for Office of Undergraduate Research, TRiO Student Support Service, graduate student coordinator
- Storage spaces that will allow equipment to be moved off tables so that rooms can be flexibly reconfigured