

EYP/® minutes

To:	Attendees	Date of meeting:	May 21, 2019
Project Name:	Bull Run Hall Addition	Time of meeting:	2:45-4:45
Project No.:	1019004.01	Location of meeting:	Sci Tech, IABR, Conf Rm 1004
		Meeting Number:	1.8

Meeting Purpose: Instructional Dry Labs & Support Spaces

Attendees:

George Mason University:

- Kimberly Rule, Forensic Science/COS
- Carrie McVicker, COS
- Barney Bishop, Chem & BioChem
- Amanda Caswell, CEHD/Athletic Training
- Debra Stroiney, Kinesology
- Johnnie Hall, VSE Mech
- Ben Allen, IST
- Shani Ross, VSE Biology
- Ramin Bighamian, VSE Mech
- Jeffrey Moran, VSE Mech
- Crystal Clemons, ITS
- Iosif Vaisman, SSB
- Laura Manno, Provost/Planning
- Colby Grant, Sci Tech Admin
- Laura Manno, Provost/Planning
- Debbie Brady, Facilities
- Virginia Steele, Facilities
- Joy Staulcup, Facilities

EYP:

- Melissa Burns, Academic Planner
- Brian Tucker, Lab Planner
- Rebecca Ross, Planner/Architect
- Suzanne Klein, Project Director

Minutes:

General Comments:

The group met on George Mason University's SciTech campus to discuss functional space needs for Bull Run Hall Addition and Academic VIII Buildings. This meeting focused on needs specifically related to instructional dry labs and support spaces.

1. **Introductions:** Laura Mano provided an introduction of the design team EYP which was followed by introductions of all participants.
2. **Project Overview:** Laura explained that the Sci Tech campus will be a standalone campus and GMU

is committing resources to make that happen. The first step is Bull Run Hall Addition followed by a 200,000gsf building, Academic VIII, listed as the number one priority to request capital funds. She asked the group to identify functional space needs to refine the program for the Bull Run Hall Addition and identify new needs for the expansion into Academic VIII.

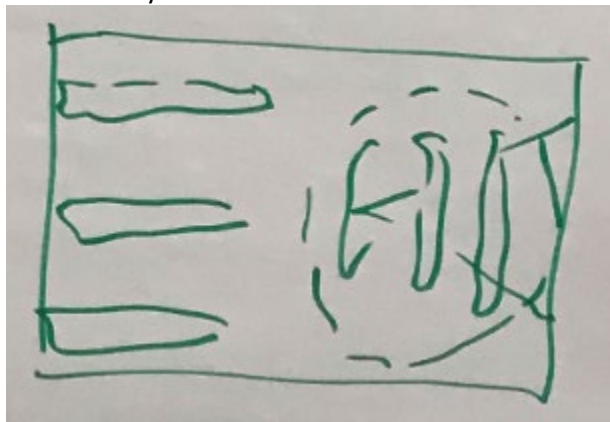
Brian and Melissa lead a programming exercise to list and describe each functional space type related to instructional dry labs and support spaces.

3. **Microfluids:** Jeff Moran

- Program 4-5 years out / mostly Wet Lab needs
- Fluid Dynamics at a micro scale, like plumbing the size of a human hair.
- Fume hood
- Microscopy
- Some Chemistry
- Computational work to focus on modeling
- Grad level courses, working toward a PhD program
- Students have an interest in Aerospace
 - Wind tunnel

4. **Mechatronics + Controls Engineering:** Ramin Bighamian

- 24 students per lab; 8 teams of 3; 8 workstations
 - Workstations have two computers and equipment attached to the back of the workstation.
 - Can be shared with electrical engineering labs
- 90 min. lab and 30 min. lecture in the same space.
- “Class-a-tory” model was discussed



- Equipment:
 - Working with Sensors and Controllers
 - Oscilloscopes
 - Electronics Benches
 - No soldering
 - Equipment will still be used within the next 10 years to train for the job market.

5. **Athletic Training:** Amanda Caswell

- First Aid/Emergency Care:
 - Multiple Sinks
 - First Aid
 - CPR (use a manikin)
 - Obstructed Airways
 - Oxygen administration
 - Wound Management
 - Spine Isolation
 - Rectal thermometers
 - Open space for simulation
 - 20 Min lecture, 20-30 min lab time then back to lecture and back and forth.
 - Could work in a classroom with space to perform labs.
 - Therapeutic Intervention:
 - Exercise
 - Therapeutic modality
 - Ultrasound
 - Electrical stimulation
 - Pyrotherapy
 - Sinks, Ice Machine, Whirlpools, Oxygen
 - Whirlpools
 - Class groups of 3-6 per whirlpool (min. 3 whirlpools; 4 ideal)
 - Sitting around tables doing activities. Tables around the exterior of the room with lecture space in the middle.
 - Low tables 30" off of ground
 - Plinth Table with pad on top (could double as desk)
 - Two students per table / 16 – 24 students
 - Space to work with manikins
 - Multiple electrical outlets for machinery, raceways. Could have power come down from the ceiling.
 - Space to perform activities
 - Weights, exercise bands, strength training equipment
 - Advanced Function Anatomy:
 - Use Cadaver Lab
 - Assessment would need plinth tables
 - Skeletons
 - Pal Patient (Patient Care)
 - Similar Assessment space
 - Plinth tables and skeletons
 - Students need access to go back in and practice lab outside of class time for accreditation.
- 6. Bioinstrumentation / Circuits: Shani Ross**
- Similar uses to an electrical engineering lab (bench the same)
 - Temperature control
 - Use pressure sensors, electrodes with electrode gel to take measurements.

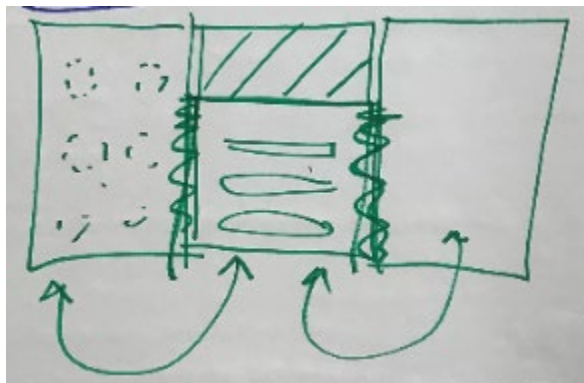
- Computer to process data
- Soldering Station
- Oven to bake circuits
- Grounded Power outlets
- 24 students per class / work in groups of 3
- Professor gives a lecture (using whiteboard and projector) before lab.
- Storage for student projects within the lab space
- Prep space could be part of the storage; not sure if actual prep space is required. May need time to set up lab.
- Table top 3D printers
- Hand washing sink

7. Mechanical Engineering: Johnnie Hall

- Spaces could tie in with electrical spaces
- Storage for senior competition projects
- Improvements from their innovation facility:
 - Larger storage spaces, deep and tall cabinets or caged locker
 - General area for storage
 - Multiple storage options
 - Wider surfaces for working and ample space for students to gather around a table.
 - Stock Materials storage space
 - Common area for informal learning space

8. Kinesiology + Exercise Science: Debra Stroiney

- Most similar program to Athletic Training
- Students teach each other how to do lifts and strength exercises.
- Lecture based then do an activity.
- Can do these activities in a gym, but it's hard to hear each other.
- Brian drew a concept of two spaces (Human Performance and Athletic training) that share a classroom.



- Exposure to Athletic Training (Masters Program) as a Kinesiology undergrad is good. GMU offering an accelerated program for Kinesiology students to go into Athletic Training.
- Functional Anatomy is an undergrad course in Kinesiology.
- Sink would be useful in Human Performance Lab, but not necessary. Locker room nearby

would be helpful.

9. **Biochemistry:** Barney Bishop

- Large inventory of supplies to maintain and store.
 - Historically in a separate space than the wet lab.
- Labs between 10 – 24 students.
- Storage space for stools adjacent to the lab. Stools can not be in the room during a lab.
- Lab Support Space:
 - Fume hood
 - Corrosives
- Cubbies for student belongings.

10. **Forensic Science:** Kimberly Rule

- Classes are a hybrid between wet lab and dry lab.
- Dry lab limitation is storage, stuff is very heavy and sturdy storage is required.
- Clay Reconstruction:
 - Facial Reconstruction
 - Sink for clean-up purposes (washing hands)
 - 16-18 students currently because of space limitations. Future capacity 24 or 25 students.
 - Current lab is on 3rd floor of Exploratory.
 - Need same technology and flexibility is important.
 - Students sit around a higher table with lockable castors.
 - Reconfigurable classroom to work in groups or at stations.
 - Tables are covered in paper.
 - Stools need backs.
- Photography Lab:
 - Not developing film
 - Dark Room, using techniques with light sources.
 - Camera set-up with tripods
 - Up to 24 students at once
 - Need to be able to have “lights on” vs “lights out”
 - Blue Star fluorescents, finger print powder, body fluid detection
 - Outlets for student devices and charging of camera components and equipment.
 - Close proximity to “Trace Lab” to prep samples to go into the Photography Lab.
 - Carrie McVicker will confirm requirement of the Trace Lab and if it was covered in an earlier Program Session.

11. **Systems Biology:** Iosif Vaisman

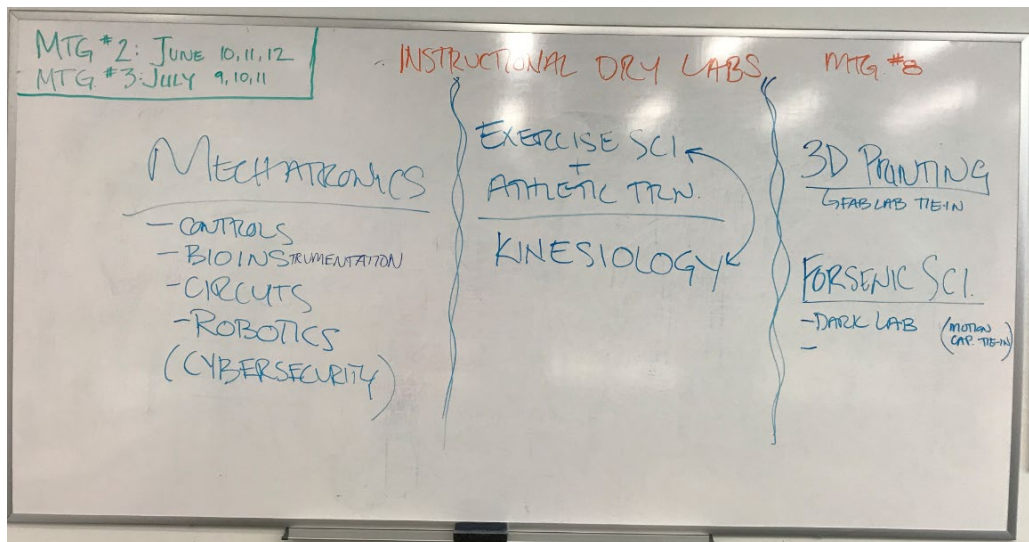
- Sequencing lab
 - Mix between wet and dry
 - Sample Prep: wet
 - Sequencing: dry
 - Biosafety cabinet
- Up to 30 students per lab; most labs 18
- Bioinformatics

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- Table top 3D printers to create physical models.
- Access to a central resource lab 4-6 times per semester
- Storage for equipment

12. Connections: Brian directed the group to create connection between the different departments to develop functional program types.

- Mechatronics
 - Controls
 - Bioinstrumentation
 - Circuits
 - Robotics
 - (Cyber Security)
- Exercise Science + Kinesiology
 - Athletic Training
- 3D Printing
 - Fab Lab tie-in
- Forensic Science
 - Dark Lab



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INSTRUCTIONAL DRY LABS **11/17 #3**
1 OF 6

MICROFLUIDICS (JEFF)
- "Human Hair Size" PIPES
- FIT (MINI AUTOPIP)
- MICROCOPY (OPTICAL SEM)
- SOME CHEMISTRY

4.5 YRS OUT

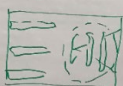
COMPUTATIONAL (JEFF)
- MODELING - COMPUTERS

AEROSPACE
- WIND TUNNEL (SERIAL)
- 1-2 FEW TIMES

(TRAINING)

METALLURGY + CONTROL ENG. 24 S. ELEC ENG → TIE-IN
- 24 STUDENTS
- 3 MEMBER TEAMS → 8 TOTAL WORKSTATIONS
- SENSORS/CONTROLLERS
- OSCILLOSCOPES
- ELECTRONICS BRANCHES
- NO SOLDERING

- 90 MM LABS
- 30M. COUNTS

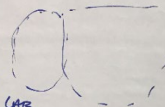


(SHAWN)
BIOINSTRUMENTATION / CIRCUITS 2 OF 6

- OSCILLOSCOPE / CIRCUITS / SENSORS - ATTRACT TO PEOPLE
- COMPUTERS
- SOLDERING
- OVEN TO BAKE CIRCUITS
- POWER / GROUNDING
- ELEC. BOXES
- 24 STUDENTS - 8 GROUPS
- INSTRUCTIONAL SPACE WITH LABS
- TEACHING TECH.
- STORAGE W/IN SPACE (10 DRAWERS)
- 3D PRINTERS (TABLETOP - REMOVED)
- SINK

STUDENT PROJECT SPACE: (SHAWN)
• STORAGE - LARGES / DEEP CABINETS / TRUCK
• CASES
• LOCKERS
• MULTIPLE SINKS
• METAL SHOCK STOR. / PIPING

• COMMON AREA = "CONFERENCE ROOM"



CHEMISTRY - BIOCHEMISTRY (SHAWN) 3 OF 6

- LAB SECTIONS (10 - 24 STUDENTS)
- NO STUOLS
- PREP LAB: REFRIG. • FRAMMABLE
• COUNTERS • CORROSIVES
- CUBBIES • 1 FT • GAS/SOLUBLE

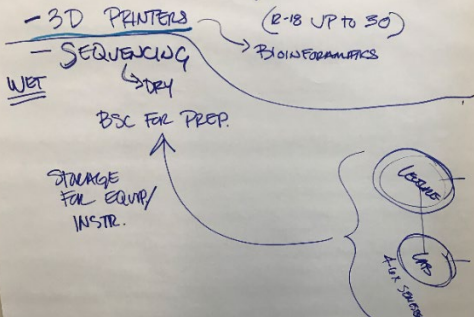
FORENSIC SCIENCE (KIM) 24 MAX (10-18 STUDENTS NOW)

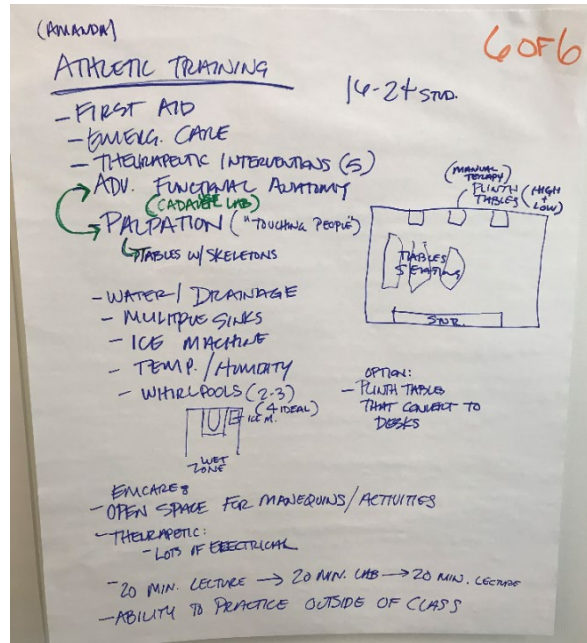
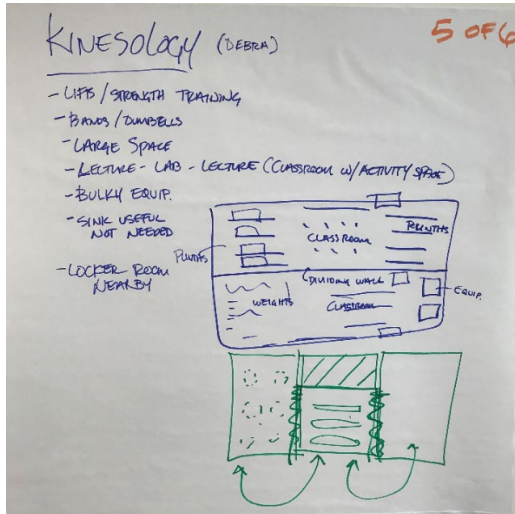
- HOURS IN CLASSROOM + LAB (WORK IN FIELD)
- STORAGE: SUPPLIES
• SPILLS + CUMULATIVE
• CASTING MOLD'S
- PHOTO CHANGING EQUIP
- VENTILATION AIRLOCKS - STUDENT BELONGINGS
- SINK
- HIGH TABLES ON CASTER (FLEXIBILITY)
• EPDM IDEAL
• ABS, HT
- ELECTRICAL POWER / FLOOR BOXES
- DRY PHOTOGRAPHY LAB (ADD TO WET LAB)
• PHOTOGRAPHY
• GROUP OF 24 STUDENTS (10 NOW)
• DIVIDER - PART OF LARGER ROOM
• ANOTHER ROOM THAT IS DARK

? WET LAB TIE-IN?

SYSTEMS BIOLOGY 4 OF 6

- 3D PRINTERS (2-18 UP TO 30)
- SEQUENCING (2-18 UP TO 30)
- BSC FOR PREP.
- STORAGE FOR EQUIP/ INSTR.
- WET LAB
- BIOINFORMATICS
- LABS
- LAB SPACE





End of Meeting

The above constitutes my understanding of the items discussed and the decisions reached. If there are any additions or corrections, please, contact the undersigned.

Signed: Suzanne Klein

Cc: Attendees

Date: May 25, 2019