July 2018 UNIVERSITY OF WISCONSIN-EAU CLAIRE Science Programs Feasibility Study BWBR # 3.2017246.00 | DFDM # 17H1Q



ACKNOWLEDGEMENTS

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UNIVERSITY OF WISCONSIN-EAU CLAIRE CAMPUS



100′

400

SCALE: 1" = 200'-0"

EXECUTIVE SUMMARY

This Feasibility Study for Science Programs at University of Wisconsin-Eau Claire (UWEC) was commissioned to evaluate the most feasible way of accommodating science, nursing, and preprofessional health science programs on the UW-Eau Claire campus. Options considered included: reuse of existing space; combination of new space and reuse of existing space; and construction of new space.

The study will serve as the basis for future capital budget requests. Objectives of the study included:

- Determine the most feasible way of accommodating science, nursing, and pre-professional health science programs on the UWEC campus.
 - Investigate options for reuse of existing space, construction of new space, and a combination of new construction and reuse of existing space.
 - Develop a reliable cost estimate for future funding request.

College	Existing Location	Department
		Biology
		Chemistry
		Geology
	Phillips Hall	Geography & Anthropology
Arts & Sciences		Physics & Astronomy
		Materials Science & Engineering
		Computer Sciences
	Hibbard Hall	Psychology
		Mathematics
	Health Sciences & Services	Watershed Institute
Nursing & Health Sciences	Nursing Hall	Nursing
Nursing & rieditit sciences		Pre-Professional Health Sciences

This study assessed space needs for the following departments:

The Case for Sciences at UW Eau Claire

Several distinguishing factors set UW-Eau Claire apart from peer institutions.

The College of Arts and Sciences boasts the most comprehensive science program offerings in the state. While most institutions offer Biology, Chemistry and Physics, UWEC offers these and Computer Science, Environmental Health, Geography, Anthropology, Geology, Materials Science & Engineering, Physics, Astronomy, and Psychology. Additionally, a strong Mathematics department supports and collaborates with all of these fields. Strong collaborations currently exist across disciplines and departments.

In 1988 the Board of Regents established at Eau Claire the Center of Excellence for Faculty and Undergraduate Student Research Collaboration. Unique throughout the UW System, the Center enhances undergraduate education quality, encourages students toward advanced learning, promotes continual improvement of curricula, and facilitates inter-departmental cross-disciplinary opportunities for students and faculty. UW-Eau Claire annually hosts the Center of Excellence in Research and Creative Activity (CERCA) event which supports the UW System version (Symposium for Undergraduate Research and Creative Activity-SURCA) and the National Conference on Undergraduate Research (NCUR).

UW-Eau Claire is an award-winning national leader in undergraduate research. For more than 50 years, since the first student-faculty co-authored publication, undergraduate research, scholarship, and creative activity have flourished at UWEC. It has expanded across disciplines, class rank, and diverse student populations to become deeply rooted in campus culture. On average, 45% of students have at least one in-depth scholarly research experience by the time they graduate. (Source)

The College of Nursing & Health Sciences has a large and growing nursing program. The College has a reputation of responding to community's and state's needs and is regularly involved in new initiatives, enhancing community connections, promoting a diverse faculty and student body, and maintaining sustainability. The College must increase enrollment and graduates to meet the shortage of nurses in the region.

Several innovative and interdisciplinary initiatives are currently thriving in the areas considered for the study:

- Materials Science Center
- Watershed Institute
- Health Sciences Institute
- Health Sciences Career Services
- Geospatial Analysis & Instrumentation
- Responsible Mining Initiative

New Collaborations and Academic Endeavors

In addition to the vibrant work and innovative partnerships already occurring at UW-Eau Claire, new collaborations and majors are starting:

- Mayo Clinic Partnership
- Neuroscience new major
- Engineering Physics Comprehensive Major
- Bioinformatics and Data Science
- Biomedical Engineering
- Alternative Energy Generation

Analysis of Need

The facilities at UW Eau Claire somewhat support the needs of the programs currently, but to varying degrees.

Nursing Hall has been added to and remodeled over the years. Nursing space meet current needs, but the program is anticipated to double in size and existing space will not meet future growth.

Phillips Hall in has been remodeled over the years to address infrastructure failings, but the building is plagued with mechanical, electrical and envelope issues, as described later in this report. Additionally, the floor structure, while code compliant when the building was built, no longer meets the targeted floor loading capacity for modern laboratories. Therefore, it is not serviceable into the future.

In addition to infrastructure remodeling, spaces in Phillips Hall have been remodeled and repurposed to meet changing program and pedagogical needs. For example, the first floor was extensively remodeled to accommodate the new Materials Science and Engineering program. However, this program has grown significantly and the spaces are undersized for current and projected enrollment. Several classrooms have been repurposed for teaching and research laboratories throughout the years to meet the growing need for science intensive space. Teaching laboratories have been renovated to meet changes in emphasis and create a microbiology suite. A final example is the fourth floor organic chemistry laboratory was renovated to combine a classroom and laboratory to allow more space for discussion and group work with in the laboratory. Each of these remodels or repurposing accomplished some of the goals, but the building infrastructure was limiting with column layouts, mechanical air service, electrical service and envelope.

Instructional Laboratories

A student's first science experience occurs in a teaching laboratory. The earliest form of "active learning," labs should be a place of safe experimentation. UWEC's growing and new programs have converted some existing classroom spaces into labs. All of the teaching labs in Phillips Hall need to be updated to current pedagogical standards (sf/student). Additionally, labs need to be updated from 50 years ago to include efficient digital communication infrastructure, both faculty-to-student and instrumentation online connectivity. The rooms also have inadequate mechanical system ventilation which makes spaces unsafe. Outdated and unsafe instructional facilities severely limit the ability for faculty to teach and students to learn.

Research Laboratories

Observations of the existing research space in Phillips show that research labs are fully utilized and additional space is needed to support the work. Given the importance, size, and pervasiveness of student/faculty research at UW-Eau Claire, additional research space is proposed. Support Facilities

Lab Support Spaces

Laboratory support spaces include areas for preparation, shared instrumentation, safe storage, and other spaces such as greenhouses. Currently, the existing building lacks sufficient space for existing instrumentation donations. A wide hallway has been converted into a room for student study. A lack of space for separate, controlled rooms for instrumentation impacts the functionality of equipment. Additional efficiently planned space for support areas is proposed.

Existing Conditions Assessment

Re-use options considered for the study focused primarily on Phillips Hall, but considerations were also given to Hibbard Hall and Nursing Building.

- Phillips Hall (193,400 GSF) was built in two phases, completed in 1963 and 1968, respectively. The existing five-story Phillips Hall currently houses the physical sciences, including biology, chemistry, physics, astronomy, geology, geography, anthropology, computer sciences, a bird museum, green houses, a planetarium, general assignment classrooms, and computer labs. As the primary science facility on campus, this building has been renovated several times in an effort to keep its laboratories and classrooms current with the needs of the continuously evolving science disciplines. Although some limited upgrades were completed as recently as 2003, continued investment in laboratory and research space is essential to ensure the campus portfolio can support academic programs.
- Hibbard Hall (161,677 GSF) was completed in 1973 and along with other humanities disciplines, houses psychology and mathematics. Previous studies of the science disciplines recommend co-locating compatible science departments with mathematics. The feasibility of this pairing was investigated as part of this study.

Nursing Building (42,929 GSF) was originally built in 1968, with an addition in 1984. Support of the nursing program and its alignment with the emerging pre-professional health sciences programs was evaluated during this study.

Several limitations were noted in Phillips Hall that prevent science faculty from using active/collaborative teaching methods and furthering their student/faculty research endeavors. These are further described in Section 4.0 and include:

- Insufficient space. Over the years, spaces have been co-opted to respond to needs as programs emerged and evolved. Classrooms have been turned into research and teaching labs. Teaching labs have been remodeled into instrumentation centers. Hallways have become student computational research areas. As a result, departments have compromised on space, adjacency, and effectiveness of space. There is no space available in the existing building for growth or expansion of programs.
 - Inefficient space. Due to the phased nature of the construction, Phillips Hall has inefficient use of stairs and mechanical/electrical spaces.
- Safety concerns. The building is not sprinklered. This is a major deficiency for any commercial building, but particularly a science building. Additionally, non-code compliant, undersized HVAC systems have difficulty removing contaminated air that should be exhausted.
- Structural Deficiencies.
 - Floor Loading Capacity. Classrooms and laboratories were designed to accommodate 50 pounds per square foot. Contemporary laboratory buildings are designed to meet code requirements at 150 pounds per square foot. This increased capacity allows for greater equipment usage in the laboratories.
 - Floor-to-floor Height. One of the most challenging features to contend with is the 12' floor-to-floor height of the existing Phillips Hall. Contemporary laboratory buildings are designed at 16' floor-tofloor (or greater) to allow for large duct sizes, piped services, deep structure, and other infrastructure necessary for science.
- Electrical Deficiencies. There is limited to no additional panelboard and generator capacity. As would be expected of a building of this age, all electrical systems would need to be replaced with a major renovation.
- Plumbing and Piping Deficiencies. As would be expected of a building of this age, all plumbing and piping systems would need to be replaced with a major renovation.
- Mechanical Deficiencies. The mechanical systems upgrade in 2002 was compromised due to budget constraints and it never adequately addressed the needs of a science building.

One inadequacy is that the air systems are at capacity, yet rooms still need more exhaust and the corridor is being used as a plenum. All mechanical systems would need to be replaced if the building were reused, but due to the low floor-to-floor heights, duct work sizes would dramatically reduce the usable ceiling height in all spaces.

- Envelope Deficiencies.
 - Roof Deficiencies. The existing roof is nearing the end of its useful life. During the last roof replacement, existing curbs and pipe penetrations were not removed, creating endless leaks and other challenges for facilities maintenance crews. Additionally, the membrane under the greenhouse leaks when water is used.
 - Window Systems. Windows are original and have significant air infiltration and water intrusion. As would be expected of a building of this era, all window systems would need to be replaced.
 - Wall Enclosure Deficiencies. As would be expected of a building of this era, the building has limited insulation. But more problematic is the unique system that intentionally incorporates air infiltration into the enclosure. This wall system allows for water intrusion as well as very frequent intrusion of bugs (insects), birds, and bats. All of these cause considerable concern for the science being conducted in the building. Additionally, 43 doors currently exist to the outside, allowing for air infiltration and creating security issues.
- Proximity to Creek. While a unique feature of the building, it is generally ill-advised to build so close to (and over) an active stream. Proximity to the creek has caused deterioration of the foundation and water infiltration.
- Code Deficiencies. Minor code and accessibility deficiencies were noted and would be addressed in a renovation.

In addition to the vibrant work and innovative partnerships already occurring at UW-Eau Claire, new collaborations and majors are starting that bring additional space needs:

- Nursing Building was deemed sufficient to meet current use, but no additional space exists to support the growth of the program.
- The vivarium and research spaces in Hibbard Hall are insufficient to support the new neuroscience major.

Feasibility Study Process

Through an inclusive and iterative process with faculty, staff, and administration, a project vision was established based on the question: Thinking ten years out, a completed science project at UW-Eau Claire will...

- Enable UWEC to become the preeminent university for undergraduate science, engineering, and health sciences, while offering select graduate programs that build on undergraduate programs and external stakeholder partnerships.
- Support student and faculty recruitment and retention, particularly in science-, engineering-, and healthcare-related fields.
- 3. Promote expanded collaborations within science departments, across all UWEC departments, in the local community, and throughout the region.
- 4. Increase and enhance research, publications, and funding to elevate UWEC's standing as a national leader in student-faculty collaborative research.
- Promote seamless teaching and scholarship for current and future programs.
- 6. Boast environmentally conscious, sustainable, state-of-theart infrastructure to support efficiently utilized teaching and research needs with flexibility for the future.
- 7. Provide safe lab conditions for students, faculty, and industry guests, including safe storage and handling of chemicals, air flow, and materials.
- 8. Increase student, faculty, and staff diversity, attracting individuals of various races, abilities, and gender to come, stay, and succeed at UWEC.

Study Schedule

Our approach is based on our proven workshop method in which we facilitate a series of efficient and well-organized workshops, collaborating with you at your location. The use of multiday workshops allows a high level of participation by project stakeholders, end users, and the entire planning team.

October 2017 DOCUMENT/PROJECT DATA TRANSFER

Transfer of all project information to allow review and preparation for Kick-Off Meeting.

November 2017 KICK-OFF MEETING

Established and confirmed project parameters, approach, and schedule to allow all participants to prepare for Workshop #1. The primary goal was to orient all participants and establish a strong foundation for the project scope, direction, and expectations.

December 2017 INVESTIGATIONS AND PREPARATION

This period was used by the design team to develop "framework concept packages" for consideration during Workshop #1. Preparation of these concept packages in advance allowed the



Above: Images from an exercise with UWEC sciences faculty identifying project goals.

workshop exchanges to be focused on progressing the design understanding. During this period the design team also assessed existing facilities, project phasing implications, utilities, and initial program requirements.

January 2018 WORKSHOP #1 - EXPLORATION

During this workshop we reviewed, updated, and confirmed program information and explored a variety of concept layouts and established consensus around a "shortlist" of approaches for further refinement and initial cost estimation. We also presented and discussed future trends, peer benchmarking, and potential funding/phasing strategies.

Jan-Mar 2018 CONCEPT DEVELOPMENT

Following Workshop #1 we further developed the "shortlisted" concept packages based on direction received and developed summary narratives for major building and infrastructure systems. During this period we also developed phasing strategies, initial cost estimates, and project timelines.

March 2018 PRELIMINARY FINDINGS

SUBMITTAL/REVIEW MEETING

Prior to the second workshop, we conducted a review meeting to make sure the materials developed were "on track" prior to sharing them with a larger audience during the second workshop.

March 2018 WORKSHOP #2-REFINEMENT

During this workshop we presented preliminary findings and developed concept packages along with associated phasing strategies, cost estimates, and timelines. We facilitated a process to address any remaining open issues and build consensus around selection of a single concept package option for further refinement.

Apr-May 2018 FINALIZE CONCEPT

Following the selection of a single concept option package, the design team updated all program information, summary systems narratives, concept imagery, cost estimate, phasing, and timeline information, and prepared final deliverables for presentation to stakeholders.

May 2018 PRESENTATION OF DRAFT DELIVERABLES

May-July 2018 FINALIZE DELIVERABLES

Based on feedback and direction given during the presentation of draft deliverables, the design team will develop final deliverables.

August 2018 ISSUE FINAL DELIVERABLES

Following the selection of a single concept option package, the design team will update all program information, summary systems narratives, concept imagery, cost estimate, phasing, and timeline information, and prepare final deliverables for presentation to stakeholders.

- Campus provided the following information:
 - 2010 Campus Master Plan
 - Desired program delivery changes/forecast
 - Campus CAD survey
 - 2017 Condition Assessment of Phillips Hall
 - Existing building drawings
 - Space records of existing spaces including SF and space use
 - Subsurface information
 - · Class registration and scheduling data

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Approach to Space Needs Analysis

Through on-campus workshops sessions, input was gained from faculty, staff, and administrative participants regarding future space needs assuming an enrollment target (student headcount) of 11,300 by 2024. This translates to about 10,300 full time equivalency (FTE) and includes both graduate and undergraduate students.

Discussions centered on UW-Eau Claire's vision, growth, program changes, and other factors that might impact the future of sciences, nursing, and health professions. Opportunities for shared space and cross-disciplinary interactions were captured. Existing spaces were discussed, toured, and evaluated with input from faculty and staff. Existing use and functionality were evaluated relative to alignment to current pedagogical objectives and research needs.

Room Function	Area	Area	Change
Lab - Teaching	38,365 NSF	56,516 NSF	18,151 NSF
Lab - Research	26,492 NSF	49,860 NSF	23,368 NSF
Lab - Support	12,406 NSF	21,406 NSF	9,000 NSF
Lab - Storage	3,321 NSF	5,100 NSF	1,779 NSF
Lab - Prep	5,435 NSF	6,128 NSF	693 NSF
Community	2,303 NSF	3,200 NSF	897 NSF
Office	13,404 NSF	13,080 NSF	-324 NSF
Office - Support	1,084 NSF	1,680 NSF	596 NSF
Office - Conference	3,122 NSF	1,575 NSF	-1,547 NSF
Classroom	10,178 NSF	7,100 NSF	-3,078 NSF
Student	0 NSF	9,550 NSF	9,550 NSF
Total	116,110 NSF	175,195 NSF	59,085 NSF

	Existing	Proposed	Proposed
Department	Area	Area	Change
Biology	34,239 NSF	37,069 NSF	2,830 NSF
Chemistry	25,938 NSF	31,045 NSF	5,107 NSF
Computer Science	4,095 NSF	5,665 NSF	1,570 NSF
Geology	10,245 NSF	11,805 NSF	1,560 NSF
Geography & Anthropology	7,785 NSF	10,945 NSF	3,160 NSF
Materials Science & Engineering	6,937 NSF	22,805 NSF	15,868 NSF
Physics & Astronomy	15,401 NSF	17,345 NSF	1,944 NSF
Shared	11,470 NSF	14,900 NSF	3,430 NSF
Mayo Partnership	0 NSF	10,000 NSF	10,000 NSF
Psychology	8,634 NSF	3,090 NSF	3,090 NSF
Nursing	17,914 NSF	7,676 NSF	7,676 NSF
Watershed	0 NSF	2,100 NSF	2,100 NSF
Mathematics	0 NSF	750 NSF	750 NSF
Total (existing in Phillips)	116,110 NSF	175,195 NSF	59,085 NSF
Efficiency	60 %	55%	
Gross Up		1.82	
Total (existing in Phillips)	193.400 GSF	318.536 GSF	125.136 GSF

Teaching labs were given particular scrutiny against the new University of Wisconsin System goal of utilization of 32 weekly room periods (WRP). Rather than simply copy forward existing teaching laboratories, faculty reviewed a complement of proposed laboratory types for the given area of science. For example, teaching laboratories for General Biology, Microbiology, Anatomy, and Physiology each require very different types of laboratory space.

Future space needs were organized into type categories and estimated based on several factors—see Space Needs Analysis section. An efficiency factor of 55% was used, meaning that the proposed usable space needs (net square feet - NSF) account for 55% of the gross area and the remaining 45% of the gross area is held for mechanical spaces, walls, toilets, data closets, electrical rooms, etc. This factor is based on data mining of several projects recently completed by the design team.

Space and Cost Benchmarking

The cost model for this study was developed from construction costs on several recently completed or bid projects of comparable size, scope, and science intensity (see table on next page). Based upon these and other comparable projects, the following construction costs were used in the cost model for this study. Note the 4% indicated for escalation is calculating 4% per year since the construction completion date. Care should be taken to consider current escalation factors. All areas noted are gross square feet.

New Building - Science	\$450/sf
New Building - Non-Science	\$400/sf
Remodel - Science	\$355/sf
Remodel - Non-Science	\$275/sf

Comparable projects

				CONSTRUCTION COST					ESCALATED COST		
	PROJECT	NEW/ RENO	CONSTRL COS	ICTION TS	AREA	COST/ GSF	CONSTRUCTION COMPLETE	E	ESCALATED COST (%/year)	COST /SF	
					(GSF)				4%		
ojects	Buena Vista University Estelle Siebens Science Hall	NEW	\$ 14,2	220,949	76,192 SF	\$187 /SF	1/8/0	4	\$ 24,849,775	\$326 /SF	
WBR Pro	University of Minnesota Microbiology Research Facility	NEW	\$ 48,7	781,611	93,134 SF	\$524 /SF	11/1/1	5 9	\$ 53,631,512	\$576 /SF	
9	Metropolitan State University Science Education Center	NEW	\$ 32,7	728,259	66,062 SF	\$495 /SF	12/1/1	5 5	\$ 35,864,713	\$543 /SF	
	North Dakota State University A. Glenn Hill STEM	NEW	\$ 24,7	784,393	115,937 SF	\$214 /SF	1/1/1	6	\$ 27,070,938	\$233 /SF	
	Carroll University Science Phase I- Jaharis	NEW	\$ 25,0)30,387	42,757 SF	\$585 /SF	8/1/1	6	\$ 26,721,231	\$625 /SF	
	Carroll University Science Phase II- Hastad	NEW	\$ 18,4	127,927	37,157 SF	\$496 /SF	11/1/1	7 9	\$ 18,731,550	\$504 /SF	
	University of Minnesota-Duluth Chemistry and Advanced Materials Science	New	\$ 33,7	798,232	56,211 SF	\$601 /SF	8/1/1	8	\$ 33,798,232	\$601 /SF	
	Cornell College Russell Science Center (as Designed)	NEW	\$ 26,7	763,817	50,378 SF	\$531 /SF	11/1/1	8 :	\$ 27,383,198	\$544 /SF	
iects	University of Wisconsin-Stout Jarvis Hall Science Wing	NEW/ RENO	\$ 31,2	200,000	156,140 SF	\$200 /SF	8/1/1	0	\$ 42,144,755	\$270 /SF	
item Proj	UW LaCrosse (as Designed)	NEW	\$ 66,5	500,000	187,613 SF	\$354 /SF	8/1/201	8 .	\$ 67,375,100	\$359 /SF	
UW Sys	UW Steven's Point (as Designed)	NEW	\$ 60,3	327,300	176,500 SF	\$342 /SF	8/1/201	8 .	\$ 61,121,171	\$346 /SF	

Average \$448 /SF

Proposed Response

Four primary concepts were evaluated to address current and future facility needs for science, nursing, and health sciences at UW-Eau Claire. Concept A hoped for renovation of Phillips Hall alone, Concept B considered partial demolition and an addition, Concept C is one new building for the entire space needs, and Concept D is two new buildings in phases. Concepts A & B do not accommodate all of the required space needs, so additional space would need to be renovated or built. Concept C has the highest cost and is anticipated to be outside the anticipated current financial possibilities. Concept D is recommended. See Section 2.0 for additional information about costs and departmental locations. See Appendix for proposed design schedule for a phased approach.

CONCEPT A - RENOVATION OF PHILLIPS HALL

Concept A emphasizes the reuse of Phillips Hall in its entirety. The amount of area available in Phillips does not meet the demonstrated need for all departments and academic units, therefore only some departments would be accommodated in the renovation. This concept locates Biology, Chemistry, Geology, Materials Science & Engineering, and two-thirds of Physics & Astronomy in Phillips. The remainder of Physics & Astronomy and all other departments and academic units would need to be accommodated in remodeled or new space on campus. Therefore, the Concept was deemed not viable.



CONCEPT B - ADDITION AND RENOVATION OF PHILLIPS HALL

Concept B studied demolition of the office wing in Phillips Hall, with a complete remodel of the remainder of Phillips. The addition creates space for all departments and academic units to fit in a renovated Phillips except Nursing, Computer Science, and Geography & Anthropology. Again, space for these groups would need to be accommodated through new construction elsewhere on campus.

The concerns about renovation of Phillips Hall in Concept A are still applicable to Concept B:

- Remodel does not accommodate enough of space need, forcing the departments and academic units studied into separate buildings and thus not achieving the desired cross-disciplinary collaboration.
- No existing space currently exists to accommodate departments and academic units not housed in a renovated Phillips Hall. And as such, new space is planned for these units.
- The addition would be built with higher floor-to-floor to accommodate mechanical systems, but this will cause none of the floor levels to be aligned.

Even with all new building infrastructure, the building structure in the remaining portions of Phillips is not conducive to modern science lab design. The 12' floor-to-floor would either limit the size of duct work (and likely limit amount of air that could be supplied to laboratories) or ceiling heights would be lower than acceptable by code.



CONCEPT C - NEW BUILDING

Concept C proposes a new building to accommodate all space needs identified. Phillips Hall could be re-purposed or demolished.

Observations on Concept C:

- This concept accommodates all of the space needs identified, encouraging cross-disciplinary interactions.
- However, the space needs identified for Nursing accommodate only a portion of the spaces used by Nursing. As a result Nursing spaces and functions would be spread over two buildings (Nursing Building and New Science).
- Putnam and Thomas residence halls would need to be demolished to create space on campus for a building this size.
- Construction cost for this concept is expected to be \$147,923,182. See Concepts section for more information.



CONCEPT D - RECOMMENDED

A single new building is expected to be outside the scope of current financial possibilities. A phased approach is recommended. Note the following observations about phasing the new building.

- This concept, like Concept C, accommodates all of the space needs identified encouraging cross-disciplinary interactions, but does so in a two-phased project, effectively splitting the \$147,923,182 construction cost in half.
- The space needs identified for Nursing accommodate only a portion of the spaces used by Nursing. As a result, Nursing spaces and functions would be spread over two buildings (Nursing Building and New Science).
- Further study is required to determine the best functions, uses, and departments to be included in each phase, but for the purposes of this study, the higher intensity sciences of Chemistry, Geology, Physics, and Materials Science & Engineering are included along with Nursing Simulation and Mayo Clinic collaborative space.

The structural, mechanical, and electrical design intent for two-phased buildings is the same as one building. See Concepts Section for additional information about scope by discipline.



2.0 SPACE NEEDS ANALYSIS

Approach to Space Needs Analysis

Through on-campus workshop sessions, input was gained from faculty, staff, and administrative participants regarding future space needs assuming an enrollment target (student headcount) of 11,300 by 2024. This translates to about 10,300 full time equivalency (FTE) and includes both graduate and undergraduate students.

At Workshop 1, discussions centered on UW-Eau Claire visions, growth, program changes, and other factors that might impact the future of sciences, nursing, and health professions. Future projects for growth and change were gathered from each department and academic unit. Opportunities for shared space and cross-disciplinary interactions were captured as well. Existing spaces were discussed, toured, and evaluated with input from faculty and staff. Existing use and functionality were evaluated relative to alignment to current pedagogical objectives and research needs.

Workshop 2 focused on proposed space needs. Teaching labs were given particular scrutiny against the new University of Wisconsin System goal of utilization of 32 weekly room periods (WRP). Rather than simply copy forward existing teaching laboratories, the faculty reviewed a proposed minimum complement of laboratory types for the given area of science. For example, teaching laboratories for General Biology, Microbiology, Anatomy, and Physiology each require very different types of laboratory space. Example cards (similar to baseball cards in that they have pictures and facts) were offered for each basic teaching and research laboratory. The laboratory types were presented with minimal designation of the department so as to allow each department to think about how they might use a given space, allowing for opportunities for greater cross-departmental pollination and higher room utilization. Additionally, faculty were asked to identify courses that would be taught in each teaching

lab type and researchers that would be located in a given type of research laboratory. Future space needs were estimated based on several factors. A detailed listing of proposed space by department and US Department of Education FICM coding is included in this section.

TEACHING LABORATORIES

Most teaching laboratories are factored at 50 sf/student, with Organic Chemistry being the exception at 75 sf/student. These are widely held industry standards for design of teaching laboratories and align to the last several science buildings built within the University of Wisconsin System. Existing labs in Phillips Hall average 41.7 sf/student (71 sf for the Organic Chemistry lab).

A projected fall and spring utilization was calculated for each of the teaching laboratories proposed to compare to the goal of 32 WRP. This projection was based on fall 2017 and spring 2018 courses and projected future and periodic courses.

Many labs are unique in nature and can only support certain courses, and as such these may not achieve the 32 WRP. Where possible, multiple labs of the same type were indicated to allow for flexibility in scheduling and efficient utilization.

It should be noted that all departments and academic units expressed concern about the 32 WRP goal. They agreed that this is achievable (and currently being achieved) in high throughput teaching labs, like General Chemistry, where the laboratory schedule is filled with multiple sections of the same course. Other teaching labs must teach multiple courses. It can often take 3-6 hours for faculty and staff to perform the set up required for the switch between courses. Currently, three different courses would be a lot of changeover in a given week requiring prep time for each of these different courses This also requires that multiple sections of the course occur in succession, as the prep for the course is only done once for the week.

Faculty also noted that they are performing their own prep work. A higher required room utilization will create scheduling conflicts, limited the window for faculty to do their preps. Departments noted special schedules for labs and lectures which cause limitations on when courses can be offered. The nature of a smaller UW institution was also noted to constrain the schedule in that the same faculty member is often teaching the lab and lecture and there is a desire to limit labs to being taught in the daytime.

RESEARCH LABORATORIES

Standards for research labs at an undergraduate institution vary considerably, but generally fall into a range of 300 sf/ researcher to 500 sf/researcher. Given the importance, size, and pervasiveness of student/faculty research at UW-Eau Claire, a factor of 500sf/researcher was used for wet and dry bench research. 200sf/researcher was used for computational research. Observations of the existing research space in Phillips show that research labs are fully utilized and additional space is needed to support the work.

PREP AND STORAGE

Prep and storage needs vary between institutions based on staffing and methods. The design team reviewed current practices and current spaces and sized the proposed need accordingly.

OFFICES

Proposed spaces include 120 sf/faculty, staff; 60 sf/adjunct faculty. Departmental chairs and administration reviewed counts for offices.

OTHER SPACES

These were assessed for needs and compared to existing spaces. See comments per department later in this section.

EFFICIENCY FACTOR

The efficiency factor is 55%. This means that the proposed usable space needs (net square feet - NSF) account for 55% of the gross area and the remaining 45% of the gross area is held for mechanical spaces, walls, toilets, data closets, electrical rooms, etc. This factor is based on data mining of several projects recently completed by the design team.



Above: Workshop 2 Baseball Cards

Total Space Needs	EXISTING	PROPOSED
	Area Count	Area Count
110 Classroom	10,178 NSF	7,100 NSF
115 Classroom Service	0 NSF	0 NSF
210 Class Laboratory	39,021 NSF	56,516 NSF
215 Class Laboratory Service	11,904 NSF	12,488 NSF
220 Open Laboratory	0 NSF	2,800 NSF
225 Open Laboratory Service	0 NSF	0 NSF
250 Research Laboratory	26,492 NSF	48,260 NSF
255 Research Laboratory Service	2,957 NSF	15,556 NSF
310 Office	13,404 NSF	13,080 NSF
315 Office Service	1,084 NSF	1,680 NSF
350 Conference Room	3,122 NSF	1,575 NSF
355 Conference Room Services	0 NSF	0 NSF
410 Study Room	0 NSF	9,550 NSF
570 Animal Facilities	1,515 NSF	1,100 NSF
575 Animal Facilities Services	0 NSF	690 NSF
580 Greenhouse	3,303 NSF	0 NSF
585 Greenhouse Service	577 NSF	0 NSF
590 Other	0 NSF	0 NSF
620 Exibition	2,303 NSF	3,200 NSF
TOTAL	113,557 NSF	170,395 NSF

The table above summarizes the existing and proposed space assessment. Sciences spaces were prioritized over classroom spaces. The greatest need is more space for teaching labs, especially because the current teaching labs are serving dual purpose currently for research and instrumentation. The recommended new building is the best way to achieve this, and other research-related goals of the Center of Excellence for Faculty and Undergraduate Student Research Collaboration.

The Study Room category refers to study and lounge spaces. In the existing Phillips Hall, there is student study/lounge space in hallways. This report did not attempt to define the existing area of the hallways used for student study furniture.

Space Needs by Department

Biology	EXISTING	PROPOSED		
	Area Count	Area Count		
110 Classroom	0 NSF	0 NSF		
115 Classroom Service	0 NSF	0 NSF		
210 Class Laboratory	11,023 NSF 12	13,200 NSF 11		
215 Class Laboratory Service	4,335 NSF	3,408 NSF		
220 Open Laboratory	0 NSF	0 NSF		
225 Open Laboratory Service	0 NSF	0 NSF		
250 Research Laboratory	7,976 NSF	8,700 NSF		
255 Research Laboratory Service	e 166 NSF	6,756 NSF		
310 Office	3,470 NSF	2,640 NSF		
315 Office Service	96 NSF	240 NSF		
350 Conference Room	583 NSF	225 NSF		
355 Conference Room Services	0 NSF	0 NSF		
410 Study Room	0 NSF	600 NSF		
570 Animal Facilities	1,515 NSF	700 NSF		
575 Animal Facilities Services	0 NSF	0 NSF		
580 Greenhouse	3,303 NSF	0 NSF		
585 Greenhouse Service	577 NSF	0 NSF		
590 Other	0 NSF	0 NSF		
620 Exibition	1,195 NSF	600 NSF		
TOTAL	33,044 NSF	36,469 NSF		

The Biology department has the most diverse space type needs, ranging from outdoor-focused wetland research to inside-the-body physiology and from all animal species to microbial and molecular instrumentation. Therefore, Biology has the largest amount of overall net square footage required. Yet, by sharing teaching laboratories and efficiently re-organization of space, the overall proposal noted in the table above is not significantly more square footage. Teaching Labs, Research Labs, and Lab Support/Storage categories see modest growth while ancillary categories are streamlined. For example, the only space in the Exhibition category, the current Bird Museum footprint includes a lot of circulation space around the existing Planetarium. Future design phases will include a more robust Programming Phase.

Chemistry	EXISTING	PROPOSED
-	Area Count	Area Count
110 Classroom	0 NSF	0 NSF
115 Classroom Service	0 NSF	0 NSF
210 Class Laboratory	9,221 NSF 7	13,920 NSF 15
215 Class Laboratory Service	4,047 NSF	3,120 NSF
220 Open Laboratory	0 NSF	0 NSF
225 Open Laboratory Service	0 NSF	0 NSF
250 Research Laboratory	8,268 NSF	7,900 NSF
255 Research Laboratory Service	1,055 NSF	2,400 NSF
310 Office	2,340 NSF	2,640 NSF
315 Office Service	45 NSF	240 NSF
350 Conference Room	962 NSF	225 NSF
355 Conference Room Services	0 NSF	0 NSF
410 Study Room	0 NSF	600 NSF
570 Animal Facilities	0 NSF	0 NSF
575 Animal Facilities Services	0 NSF	0 NSF
580 Greenhouse	0 NSF	0 NSF
585 Greenhouse Service	0 NSF	0 NSF
590 Other	0 NSF	0 NSF
620 Exibition	0 NSF	0 NSF
TOTAL	25,938 NSF	31,045 NSF

The Chemistry department was intrigued by the idea of collaboration "co" labs adjacent to each teaching lab. Therefore the 15 teaching lab quantity in the table above is eight (8) traditional teaching labs with seven (7) 600nsf co-lab spaces. The department also needs more space for research and instrumentation, but especially due to sharing with other departments such as Materials Science and Physics, the group was able to conceive of reorganized, more efficient spaces in about the same overall square footage. Future design phases will include a more robust Programming Phase.

Geology	EXISTIN	G	PROPOSED		
	Area	Count	Area	Count	
110 Classroom	0 NSF		0 NSF		
115 Classroom Service	0 NSF		0 NSF		
210 Class Laboratory	4,296 NSF	5	4,320 NSF	4	
215 Class Laboratory Service	578 NSF		1,400 NSF		
220 Open Laboratory	0 NSF		0 NSF		
225 Open Laboratory Service	0 NSF		0 NSF		
250 Research Laboratory	3,758 NSF		2,700 NSF		
255 Research Laboratory Service	0 NSF		1,000 NSF		
310 Office	1,366 NSF		1,320 NSF		
315 Office Service	247 NSF		240 NSF		
350 Conference Room	0 NSF		225 NSF		
355 Conference Room Services	0 NSF		0 NSF		
410 Study Room	0 NSF		600 NSF		
570 Animal Facilities	0 NSF		0 NSF		
575 Animal Facilities Services	0 NSF		0 NSF		
580 Greenhouse	0 NSF		0 NSF		
585 Greenhouse Service	0 NSF		0 NSF		
590 Other	0 NSF		0 NSF		
620 Exibition	0 NSF		0 NSF		
TOTAL	10,245 NSF		11,805 NSF		

The Geology department was able to conceive of how to share teaching labs with other departments to reduce the current number of teaching labs, as shown in the table above. Some of the main needs for Geology include storage space and space for instrumentation. As shown above, Classroom Lab Service and Research Lab Service increased in area significantly. As a result, space specific for research was able to decrease. Some instrumentation is able to be shared, with Materials Science and Chemistry, for example. Future design phases will include a more robust Programming Phase.

Geography & Anthropology	EXISTING		PROPOSED	
	Area	Count	Area	Count
110 Classroom	0 NSF		0 NSF	
115 Classroom Service	0 NSF		0 NSF	
210 Class Laboratory	3,376 NSF	3	4,800 NSF	4
215 Class Laboratory Service	554 NSF		400 NSF	
220 Open Laboratory	0 NSF		0 NSF	
225 Open Laboratory Service	0 NSF		0 NSF	
250 Research Laboratory	1,299 NSF		2,400 NSF	
255 Research Laboratory Service	0 NSF		0 NSF	
310 Office	2,034 NSF		2,280 NSF	
315 Office Service	140 NSF		240 NSF	
350 Conference Room	382 NSF		225 NSF	
355 Conference Room Services	0 NSF		0 NSF	
410 Study Room	0 NSF		600 NSF	
570 Animal Facilities	0 NSF		0 NSF	
575 Animal Facilities Services	0 NSF		0 NSF	
580 Greenhouse	0 NSF		0 NSF	
585 Greenhouse Service	0 NSF		0 NSF	
590 Other	0 NSF		0 NSF	
620 Exibition	0 NSF		0 NSF	
TOTAL	7,785 NSF		10,945 NSF	

The main focus of discussions for this department was on Geography, as the department is currently down in Anthropology faculty FTE and thus course offerings. Geospatial computers have specialized software and the rooms are already highly utilized. Therefore, the Geography department sees an increase in the number of teaching labs as shown in the chart above. Research space is also needed. Future design phases will include a more robust Programming Phase.

Physics & Astronomy	EXISTIN	G	PROPOSED		
	Area	Count	Area	Count	
110 Classroom	0 NSF		0 NSF		
115 Classroom Service	0 NSF		0 NSF		
210 Class Laboratory	6,404 NSF	6	4,800 NSF	4	
215 Class Laboratory Service	2,242 NSF		800 NSF		
220 Open Laboratory	0 NSF		0 NSF		
225 Open Laboratory Service	0 NSF		0 NSF		
250 Research Laboratory	3,396 NSF		4,800 NSF		
255 Research Laboratory Service	0 NSF		0 NSF		
310 Office	1,702 NSF		1,680 NSF		
315 Office Service	108 NSF		240 NSF		
350 Conference Room	441 NSF		225 NSF		
355 Conference Room Services	0 NSF		0 NSF		
410 Study Room	0 NSF		600 NSF		
570 Animal Facilities	0 NSF		0 NSF		
575 Animal Facilities Services	0 NSF		0 NSF		
580 Greenhouse	0 NSF		0 NSF		
585 Greenhouse Service	0 NSF		0 NSF		
590 Other	0 NSF		0 NSF		
620 Exibition	1,108 NSF		2,600 NSF		
TOTAL	15,401 NSF		15,745 NSF		

The Physics & Astronomy department had two underutilized labs—the Astronomy lab and Optics/Advanced lab. Through discussion, the department was able to see how courses taught in those labs could be taught elsewhere. Therefore, as noted in the table above, the department was able to drop in quantity of teaching labs. One way this is possible was to create more space for research. Most of the space noted in the Exhibition category above is on the roof of the building for an Observatory and platform for telescopes. The department envisions sharing of this area across interested organizations/ individuals from the region. The rest of the Exhibition category is the Planetarium, which is also expected to draw audiences from the region. Future design phases will include a more robust Programming Phase.

Materials Science	EXISTIN	G	PROPOS	ED
& Engineering	Area	Count	Area	Count
110 Classroom	0 NSF		0 NSF	
115 Classroom Service	0 NSF		0 NSF	
210 Class Laboratory	3,425 NSF	3	8,400 NSF	5
215 Class Laboratory Service	0 NSF		200 NSF	
220 Open Laboratory	0 NSF		0 NSF	
225 Open Laboratory Service	0 NSF		0 NSF	
250 Research Laboratory	261 NSF		6,300 NSF	
255 Research Laboratory Service	1,736 NSF		5,400 NSF	
310 Office	1,515 NSF		1,440 NSF	
315 Office Service	0 NSF		240 NSF	
350 Conference Room	0 NSF		225 NSF	
355 Conference Room Services	0 NSF		0 NSF	
410 Study Room	0 NSF		600 NSF	
570 Animal Facilities	0 NSF		0 NSF	
575 Animal Facilities Services	0 NSF		0 NSF	
580 Greenhouse	0 NSF		0 NSF	
585 Greenhouse Service	0 NSF		0 NSF	
590 Other	0 NSF		0 NSF	
620 Exibition	0 NSF		0 NSF	
TOTAL	6,937 NSF		22,805 NSF	

The newest department of those studied in this report, the department started as the Materials Science Center which focused on shared instrumentation. Space for high-intensity, specialized scientific equipment is still a priority for the department, as noted in the above table's proposed area for Research Lab Service. The department also will have more teaching labs. Because the department is new and evolving, current teaching spaces are converted classrooms attempting dual duty as research and support labs. Separating teaching labs into their own space will allow them to be highly utilized, as well as increase the use of instrumentation/research spaces. For example, currently several rooms must be accessed from within other rooms. Future design phases will include a more robust Programming Phase.

Computer Science	EXISTING	PROPOSED
	Area Count	Area Count
110 Classroom	0 NSF	0 NSF
115 Classroom Service	0 NSF	0 NSF
210 Class Laboratory	1,276 NSF 2	1,680 NSF 2
215 Class Laboratory Service	0 NSF	0 NSF
220 Open Laboratory	0 NSF	0 NSF
225 Open Laboratory Service	0 NSF	0 NSF
250 Research Laboratory	1,534 NSF	1,960 NSF
255 Research Laboratory Service	0 NSF	0 NSF
310 Office	977 NSF	960 NSF
315 Office Service	204 NSF	240 NSF
350 Conference Room	104 NSF	225 NSF
355 Conference Room Services	0 NSF	0 NSF
410 Study Room	0 NSF	600 NSF
570 Animal Facilities	0 NSF	0 NSF
575 Animal Facilities Services	0 NSF	0 NSF
580 Greenhouse	0 NSF	0 NSF
585 Greenhouse Service	0 NSF	0 NSF
590 Other	0 NSF	0 NSF
620 Exibition	0 NSF	0 NSF
TOTAL	4,095 NSF	5,665 NSF

The Computer Science department's greatest concern was number of FTE faculty, as it relates to the number of classes available to offer. The department is particularly interested in partnerships with international students, though those were not the focus of this report. As shown above, the department will see modest growth in area for Teaching and Research spaces. Future design phases will include a more robust Programming Phase.

Psychology	EXISTIN	IG	PROPOS	ED
	Area	Count	Area	Count
110 Classroom	0 NSF		0 NSF	
115 Classroom Service	0 NSF		0 NSF	
210 Class Laboratory	657 NSF	1	0 NSF	0
215 Class Laboratory Service	0 NSF		0 NSF	
220 Open Laboratory	0 NSF		0 NSF	
225 Open Laboratory Service	0 NSF		0 NSF	
250 Research Laboratory	0 NSF		2,000 NSF	
255 Research Laboratory Service	0 NSF		0 NSF	
310 Office	0 NSF		0 NSF	
315 Office Service	0 NSF		0 NSF	
350 Conference Room	0 NSF		0 NSF	
355 Conference Room Services	0 NSF		0 NSF	
410 Study Room	0 NSF		0 NSF	
570 Animal Facilities	846 NSF		400 NSF	
575 Animal Facilities Services	542 NSF		690 NSF	
580 Greenhouse	0 NSF		0 NSF	
585 Greenhouse Service	0 NSF		0 NSF	
590 Other	0 NSF		0 NSF	
620 Exibition	0 NSF		0 NSF	
TOTAL	2,045 NSF		3,090 NSF	

The Psychology department at UWEC currently exists both in Hibbard Hall and north/west of the Chippewa River in the Human Services and Sciences building. This study proposes relocating and expanding the existing animal research vivarium suite in Hibbard to the new building. This will allow optimal interdisciplinary sharing with Biology, among others, in the field of Neuroscience especially. If a concept is selected including new nursing or other healthcare spaces into a new building, the presence of animal research could include more interdepartmental synergies. Non-vivarium Psychology department spaces, such as offices and research with human subjects, is expected to remain as is. Future design phases will include a more robust Programming Phase. 25

Mathematics	EXISTING	PROPOSED
	Area Count	Area Count
110 Classroom	0 NSF	0 NSF
115 Classroom Service	0 NSF	0 NSF
210 Class Laboratory	0 NSF	0 NSF
215 Class Laboratory Service	0 NSF	0 NSF
220 Open Laboratory	0 NSF	0 NSF
225 Open Laboratory Service	0 NSF	0 NSF
250 Research Laboratory	0 NSF	0 NSF
255 Research Laboratory Service	0 NSF	0 NSF
310 Office	0 NSF	0 NSF
315 Office Service	0 NSF	0 NSF
350 Conference Room	0 NSF	0 NSF
355 Conference Room Services	0 NSF	0 NSF
410 Study Room	0 NSF	750 NSF
570 Animal Facilities	0 NSF	0 NSF
575 Animal Facilities Services	0 NSF	0 NSF
580 Greenhouse	0 NSF	0 NSF
585 Greenhouse Service	0 NSF	0 NSF
590 Other	0 NSF	0 NSF
620 Exibition	0 NSF	0 NSF
TOTAL	0 NSF	750 NSF

The Mathematics department at UWEC is located in Hibbard
Hall. In the recently completed classroom building, Centennial
Hall, the Mathematics department hosts a tutoring station.
The extent to which Mathematics was involved in this study
varied, but generally the group concluded the best use of
resources was to keep Mathematics in Hibbard Hall. The
existing tutoring station could potentially relocate to the
new building, so is included in the table above. Future design
phases will include a more robust Programming Phase.

Watershed	EXISTING	PROPOSED
	Area Count	Area Count
110 Classroom	0 NSF	0 NSF
115 Classroom Service	0 NSF	0 NSF
210 Class Laboratory	0 NSF	0 NSF
215 Class Laboratory Service	0 NSF	600 NSF
220 Open Laboratory	0 NSF	0 NSF
225 Open Laboratory Service	0 NSF	0 NSF
250 Research Laboratory	0 NSF	1,500 NSF
255 Research Laboratory Service	0 NSF	0 NSF
310 Office	0 NSF	0 NSF
315 Office Service	0 NSF	0 NSF
350 Conference Room	0 NSF	0 NSF
355 Conference Room Services	0 NSF	0 NSF
410 Study Room	0 NSF	0 NSF
570 Animal Facilities	0 NSF	0 NSF
575 Animal Facilities Services	0 NSF	0 NSF
580 Greenhouse	0 NSF	0 NSF
585 Greenhouse Service	0 NSF	0 NSF
590 Other	0 NSF	0 NSF
620 Exibition	0 NSF	0 NSF
TOTAL	0 NSF	2,100 NSF

The Watershed Institute at UWEC is an academic program that has its own faculty but also partners with other departments. The table above describes a few spaces desirable to perpetuate the new Environmental Public Health major. The Watershed Institute also offers students two minors. Future design phases will include a more robust Programming Phase.

Nursing	EXISTING	PROPOSED
-	Area Count	Area Count
110 Classroom	0 NSF	0 NSF
115 Classroom Service	0 NSF	0 NSF
210 Class Laboratory	0 NSF	5,396 NSF 7
215 Class Laboratory Service	0 NSF	1,560 NSF
220 Open Laboratory	0 NSF	0 NSF
225 Open Laboratory Service	0 NSF	0 NSF
250 Research Laboratory	0 NSF	0 NSF
255 Research Laboratory Service	0 NSF	0 NSF
310 Office	0 NSF	120 NSF
315 Office Service	0 NSF	0 NSF
350 Conference Room	0 NSF	0 NSF
355 Conference Room Services	0 NSF	0 NSF
410 Study Room	0 NSF	600 NSF
570 Animal Facilities	0 NSF	0 NSF
575 Animal Facilities Services	0 NSF	0 NSF
580 Greenhouse	0 NSF	0 NSF
585 Greenhouse Service	0 NSF	0 NSF
590 Other	0 NSF	0 NSF
620 Exibition	0 NSF	0 NSF
TOTAL	0 NSF	7,676 NSF

The Nursing department at UWEC currently exists on campus in Nursing Building. The campus is still refining the specific enrollment target for growth, but all agree the nursing program will grow. Therefore, and because nursing is directly related to the other science departments as nursing students take those courses, nursing was considered in this study. In the table above, only new nursing spaces are included. "Classroom Lab Service" includes simulated clinic rooms, skills practice labs, and debriefing space. Future design phases will include a more robust Programming Phase. See Concepts section as some concepts do not include renovation/addition/new construction for the new nursing spaces.

Mayo Partnership	EXISTING	PROPOSED
	Area Count	Area Count
110 Classroom	0 NSF	0 NSF
115 Classroom Service	0 NSF	0 NSF
210 Class Laboratory	0 NSF 0	0 NSF 0
215 Class Laboratory Service	0 NSF	0 NSF
220 Open Laboratory	0 NSF	0 NSF
225 Open Laboratory Service	0 NSF	0 NSF
250 Research Laboratory	0 NSF	10,000 NSF
255 Research Laboratory Service	0 NSF	0 NSF
310 Office	0 NSF	0 NSF
315 Office Service	0 NSF	0 NSF
350 Conference Room	0 NSF	0 NSF
355 Conference Room Services	0 NSF	0 NSF
410 Study Room	0 NSF	0 NSF
570 Animal Facilities	0 NSF	0 NSF
575 Animal Facilities Services	0 NSF	0 NSF
580 Greenhouse	0 NSF	0 NSF
585 Greenhouse Service	0 NSF	0 NSF
590 Other	0 NSF	0 NSF
620 Exibition	0 NSF	0 NSF
TOTAL	0 NSF	10,000 NSF

UW-Eau Claire is excited about this new partnership with the Mayo Clinic. The proposed new building will include space for it, as noted in the table above, but the specific needs continue to evolve. Future design phases will include a more robust Programming Phase where these spaces can be considered.

Shared	EXISTING	PROPOSED
	Area Count	Area Count
110 Classroom	10,178 NSF	7,100 NSF
115 Classroom Service	0 NSF	0 NSF
210 Class Laboratory	0 NSF 0	0 NSF 0
215 Class Laboratory Service	148 NSF	1,000 NSF
220 Open Laboratory	0 NSF	2,800 NSF
225 Open Laboratory Service	0 NSF	0 NSF
250 Research Laboratory	0 NSF	0 NSF
255 Research Laboratory Service	0 NSF	0 NSF
310 Office	0 NSF	0 NSF
315 Office Service	244 NSF	0 NSF
350 Conference Room	650 NSF	0 NSF
355 Conference Room Services	0 NSF	0 NSF
410 Study Room	0 NSF	4,000 NSF
570 Animal Facilities	0 NSF	0 NSF
575 Animal Facilities Services	0 NSF	0 NSF
580 Greenhouse	0 NSF	0 NSF
585 Greenhouse Service	0 NSF	0 NSF
590 Other	0 NSF	0 NSF
620 Exibition	0 NSF	0 NSF
TOTAL	11,220 NSF	14,900 NSF

The table above includes a variety of spaces, such as general assignment classrooms, not assigned to one specific department but instead used by many UWEC may conduct a campus-wide classroom utilization study outside of this project to confirm classroom needs in a future design phase. Other shared spaces include an interdepartmental shop suite for metal, wood, digital, electronics, and computational experimentation. It also includes some building-wide storage space and a loading area. Future design phases will include a more robust Programming Phase.

Total Space Needs

	Existing	Proposed	Proposed
Department	Area	Area	Change
Biology	34,239 NSF	37,069 NSF	2,830 NSF
Chemistry	25,938 NSF	31,045 NSF	5,107 NSF
Computer Science	4,095 NSF	5,665 NSF	1,570 NSF
Geology	10,245 NSF	11,805 NSF	1,560 NSF
Geography & Anthropology	7,785 NSF	10,945 NSF	3,160 NSF
Materials Science & Engineering	6,937 NSF	22,805 NSF	15,868 NSF
Physics & Astronomy	15,401 NSF	16,945 NSF	1,544 NSF
Shared	11,470 NSF	14,900 NSF	3,430 NSF
Mayo Partnership	0 NSF	10,000 NSF	10,000 NSF
Psychology	8,634 NSF	3,090 NSF	3,090 NSF
Nursing	17,914 NSF	7,676 NSF	7,676 NSF
Watershed	0 NSF	2,100 NSF	2,100 NSF
Mathematics	0 NSF	750 NSF	750 NSF
Total (existing in Phillips)	116,110 NSF	174,795 NSF	58,685 NSF
Efficiency	60 %	55%	
Gross Up		1.82	
Total (existing in Phillips)	193,400 GSF	317,809 GSF	124,409 GSF

The table above summarizes all space needs by department. For some departments, not all of the existing space of the department was studied if it was not in Phillips Hall and is thus grayscale in the "existing area" column. The table illustrates the overall net square footage required for consideration in the planning Concepts.

The table also lists the existing gross square footage of Phillips Hall (193,400), the total gross square feet required (318,536) and the difference (125,136gsf).

EXISTING SITE & BUILDING ANALYSIS

To understand the current issues with the building and potential for renovation or addition(s), the design team toured, discussed with facilities personnel, and reviewed existing documentation for L. E. Phillips Science Hall. The high-level review informed the design concepts, but was not a comprehensive review of partition ratings, occupant loads, egress, plumbing fixture counts, nor chemical control areas. If a concept is selected that involves renovation of Phillips, future design phases should consider those items.

This section focuses on Phillips Hall but also includes some information about the existing Nursing Building. During the Feasibility Study process, concepts involving renovation and/or additions to Nursing were considered. The needs of Nursing are as of yet undefined, though information regarding the existing building is included for future review.

Campus high pressure steam is distributed underground in box conduit to all buildings. Campus chilled water is distributed underground to all of the buildings.

Campus is served by city utilities including water, sewer, gas, and storm.

Phillips Science Hall

GENERAL INFORMATION

Phillips Hall was constructed in 1963 and the original building was 88,000 square feet. It included the Lecture Hall and Planetarium connected by an enclosed walkway, the four-story north Classroom wing, and half of the five-story office wing to the east. The second project was a major addition in 1966. This addition doubled the office wing, and also added four stories of Classrooms and Labs to the west and south, which created the courtyard in the center. The most recent addition, completed in 2002, expanded the mechanical space by adding three mechanical towers next to the main stairwells at the corners.

The building is currently 193,400 gross square feet. The construction of Phillips Hall is a noncombustible concrete frame with the interior partitions and walls being constructed of either masonry or noncombustible framing with gypsum board. The building seems to comply with Construction Type IIA allowable height and area requirements, including an allowable area increase for increased building frontage. The building is not sprinklered. The overall occupancy category is a B (Business) with some lecture halls and presentation rooms likely to be an "A" occupancy.

Over the years, (1) single occupancy toilet room per floor has been converted to provide full accessibility. Upgrades have been made to multiple stall toilet rooms (power operators and altered fixture and partition locations)

The exterior façade of Phillips Hall is made of both brick and precast panels. The lab/classroom wings to the north, west, and

south are curved precast panels. The office wing to the east is constructed of insulated panels. The stairwells are brick clad composite masonry construction without insulation. The exterior windows are all original single-glazed panels in non-thermal aluminum frames. Some windows are also equipped with an operable sash to tilt out. The roof has been updated from its original asphalt. The majority of Phillips Hall has ballasted EPDM membrane over tapered insulation except the Planetarium wing which has recently been replaced with adhered EPDM.

Current Limitations of Space and Building Deficiencies

Those departments and academic units included in the study continue to produce excellent teaching and research, despite the many challenges of their current environments. A few relevant notes for the buildings evaluated for the study include:

- Nursing Building was deemed sufficient to meet current use, but no additional space exists to support the growth of the program.
- The vivarium and research spaces in Hibbard Hall are insufficient to support the new Neuroscience major.

Several limitations were noted in Phillips that prevent faculty from using active/collaborative teaching methods and furthering their student/faculty research endeavors. An abbreviated summary of these include:

 Ilnsufficient space. Over the years, spaces have been co-opted to respond to needs as programs emerged and evolved. Classrooms have been turned into research and teaching labs. Teaching labs have been remodeled into







instrumentation centers. Hallways have become student computational research areas. As a result, departments have compromised on space, adjacency, and effectiveness of space. There is no space available in the existing building for growth or expansion of programs.

- Inefficient space. Due to the phased nature of the construction, Phillips Hall has inefficient use of stairs and mechanical/electrical spaces.
- Safety concerns. The building is not sprinklered. This is a major deficiency for any commercial building, but particularly a science building. Additionally, non-code compliant, undersized HVAC systems have difficulty removing contaminated air that should be exhausted.
- Structural Deficiencies.
 - Floor Loading Capacity. Classrooms and laboratories were designed to accommodate 50 pounds per square foot. Contemporary laboratory buildings are designed to meet code requirements at 150 pounds per square foot. This increased capacity allows for greater equipment usage in the laboratories.
 - Floor-to-floor Height. One of the most challenging features to contend with is the 12' floor-to-floor height of the existing Phillips Hall. Contemporary

laboratory buildings are designed at 16' floor-tofloor (or greater) to allow for large duct sizes, piped services, deep structure, and other infrastructure necessary for science.

- Electrical Deficiencies. There is limited to no additional panelboard and generator capacity. As would be expected of a building of this age, all electrical systems would need to be replaced with a major renovation.
- Plumbing and Piping Deficiencies. As would be expected of a building of this age, all plumbing and piping systems would need to be replaced with a major renovation.
- Mechanical Deficiencies. The mechanical systems upgrade in 2002 was compromised due to budget constraints and it never adequately addressed the needs of a science building. One inadequacy is that the air systems are at capacity, yet rooms still need more exhaust and the corridor is being used as a plenum. All mechanical systems would need to be replaced if the building were reused, but due to the low floor-to-floor heights, duct work sizes would dramatically reduce the usable ceiling height in all spaces.
- Envelope Deficiencies.
 - Roof Deficiencies. The existing roof is nearing the end of its useful life. During the last roof replace-



ment, existing curbs and pipe penetrations were not removed, creating endless leaks and other challenges for facilities maintenance crews. Additionally, the membrane under the greenhouse leaks when water is used.

- Window Systems. Windows are original and have significant air infiltration and water intrusion. As would be expected of a building of this era, all window systems would need to be replaced.
- Wall Enclosure Deficiencies. As would be expected of a building of this era, the building has limited insulation. But more problematic is the unique system that intentionally incorporates air infiltration into the enclosure. This wall system allows for water intrusion as well as very frequent intrusion of bugs (insects), birds, and bats. All of these cause considerable concern for the science being conducted in the building. Additionally, 43 doors currently exist to the outside, allowing for air infiltration and creating security issues.
- Proximity to Creek. While a unique feature of the building, it is generally ill-advised to build so close to (and over) an active stream. Proximity to the creek has caused deterioration of the foundation and water infiltration.
- Code Deficiencies. Minor code and accessibility deficiencies were noted and would be addressed in a renovation.

MEP SYSTEMS

MECHANICAL

Building is served by campus high pressure steam that enters the building on the south west side of the west building. The high pressure steam is routed through part of the building, then underground through courtyard area and then back into the building to the auditorium area. 6" HPS and 3" PC leave Phillips toward the north to connect the steam loop. 3" HPS and 1 ½" PC also exit Phillips to the north to serve Schneider Hall.

Phillips has a PRV station in the northeast corner of the building to reduce the steam pressure down to low pressure steam which is distributed through the building to air handling unit coils and also used to provide hydronic heating water. The PRV station capacity is approximately 11,000 lb/hr and was recently replaced as part of the Garfield site project. Phillips also has a PRV station at the main south mechanical room where the steam first enters the building. Within the room are a set of heat exchangers providing hydronic heating water for a portion of the building.

The building has 12" chilled water pipes providing a majority of the building cooling. One air handling unit also has a DX chilled water coil with outdoor condensing unit. The total connected chilled water load of the air handling units is about 735 tons.

There are over 20 air handing units serving the building and over 30 exhaust fans. Much of the HVAC system was replaced during the 1999 project. Given the number of units, the maintenance requirements of the building are high. Campus has had snow sucked into several of the air handling units over the winter. Louver velocities are likely high due to the limited space available. There are (8) small units in the office wing of the building that were installed in a single office space due to space constraints. There are a couple large mechanical rooms that are two stories with return fans located very high which would be difficult to access. The units in the two-story rooms are very tall and were installed on stands to allow for steam condensate from the VIFB coils to properly drain. This makes maintenance difficult.

The corridors are being used as return plenums in many areas of the building due to lack of floor-to-floor space. Corridor return is not allowed per current code. It was noted during the site visit (3/15/2018) that some rooms were extremely positive and some corridors extremely negative. Certain areas of the building have lab smells in the corridor, likely due to the use of corridor return.

Campus has very poor control of the HVAC within the building, especially with air flow control. Since the major renovation in 1999, there have been over half a dozen DFD projects to fix issues that have come up because of the renovation work or design.

Controls are a mixture of pneumatic and DDC. Most of the actuators appear to be pneumatic. During the 1999 renovation, fouling of the control compressed air lines was noted. The fouling was a black goo that came out of the pipes. The campus has several issues with the controls. A controls compressor is located in one of the mechanical rooms on a second floor mezzanine/ platform area that is accessed by a ladder. Replacement of the compressor would appear to be very difficult.

PLUMBING

A 6" water service enters the building in Mechanical Room 129B and is reduced down to 4" with a water meter and bypass. The water pressure downstream of the meter was about 57 psi. A water softener is installed in this room to soften the water that is used for domestic hot water. Hot water is produced by a steam to hot water heat exchanger in Mechanical 129B. An instantaneous gas water heater is also located in the room and is used for backup during campus steam shut down.

Sanitary and storm exit the building in several locations.

An acid dilution basin is located under the stairs of the main building and is original to the building.

Phillips Hall

Mechanical room 13 under the auditorium area has a sump pump to drain water from the area but this unit has failed and flooded the building a couple times. Water is a concern since this area is below grade next to a creek.

Glass pipe is mainly used for the acid waste and vent system with some polypropylene pipe. Campus has had several areas where the glass piping has broken or is leaking and indicated that there are several abandoned traps that were not removed during the renovation which are causing smells in the building.

The building has no fire protection.

ELECTRICAL

The building is served by a 1200A, 2500A, and a 1200A series of cutler-hammer 480V switchboards. The emergency loads of the buildings are served by a 150KW generator. Transformers step down the voltage to local 208V distribution panels. All have been replaced in the last decade. Many panels throughout the building are older Square D panelboards while the newer addition has

cutler-hammer panelboards. Existing panelboards have minimal spares and spaces available, but many circuits are utilized for lighting. Numerous labs have equipment that is desired to be on emergency power, but the sizing of the emergency power system is inadequate to support this equipment.

Lighting throughout the building, with a few exceptions, is fluorescent lighting with no automatic controls or dimming. Exterior lighting was recently updated to LED.

The fire alarm system is a Notifier horn system that was updated within the last decade. Smoke detectors are present throughout the halls but sprinkler systems are only present in a few rooms.

There are some areas where piping changes have caused clearance issues with some panelboards.

Moisture and corrosion is a common problem with HVAC systems and surfaces, which may mean there is unseen corrosion within conduit and wiring systems.

EXISTING PLANS

1963 ORIGINAL BUILDING 1966 ADDITION 2001 ADDITION





Second Level




Sixth Level



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Phillips Hall STRUCTURAL

FRAMING AND FOUNDATIONS:

The original Phillips Hall building was designed in 1963 with a major addition to the south done in 1966 and minor additions to the east and west in 2002. The main portion of the facility has a poured concrete structural frame and floor slabs, with precast concrete wall elements. The superstructure is carried by concrete columns spaced at 30'-0" on center and due to the nature of the existing soils, the columns are supported on piles and pile caps. The piles were compacted at a depth extending 20' below the bottom of the footing. The slab on grade is independent of the piles and was designed to bear directly on the upper soil layer which can result in some differential movement of the main floor slab. The typical floor-to-floor height between levels is 12'-0".

EXISTING LOADING

The original building as well as the 1966 addition were designed using lower snow loading values as are required by current building codes. The original snow loading values used in design were 30 pounds per square foot, whereas current building codes require 38.5 pounds per square foot for this building type and location. The original roof construction included an asphalt roofing with a gravel surface, which has since been replaced with a ballasted EPDM system. The ballasted EPDM system weighs more and thus increases the dead load on the structure by roughly 5-8 pounds per square foot which ultimately reduces the available snow load carrying capacity of the roof structure and increases the load on the existing columns and footings.

The existing structure does not currently appear to have any major deficiencies, but any changes in applied loads should be carefully considered.

STRUCTURAL LOADING PLANS

LABS/CLASSROOMS (50 PSF)
 STORAGE (150 PSF)
 CORRIDORS (100 PSF)
 STAIRS (80 PSF)
 ROOF (30 PSF)
 PARTITIONS (20 PSF)







Sixth Level







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Nursing Building GENERAL INFORMATION

The Nursing Building was constructed in 1968 and the original building was a square-shaped building with two levels of 30,250 square foot. The first level consisted of two large lecture halls and multiple classrooms. The second level had a large nursing practice room and smaller seminar rooms in the middle of the floor with offices along the perimeter. In 1983, a two-level 15,280 square foot addition was built to the west. This addition included exam rooms, patient entry and waiting room, seminar spaces, and research rooms on the first level and offices on the second level.

The original Nursing Building had an accessible ramp at the west entry and an elevator near the vestibule. The toilet rooms in the original building are not accessible for today's standards. The addition in 1983, has two single-use toilet rooms on the first level and larger toilet rooms on the second level that do not meet ADA requirements.

The facade of the original Nursing Building was made of brick and glass with a precast textured concrete panel that wraps the building, defining the floor of the second level and the roof's edge. The envelope of the existing building is made of CMU block with a face brick on the exterior. The 1983 addition took direction from the original building and continued with brick and the ribbon of paneled concrete around the west and south sides of the structure. These walls are constructed with 8" concrete block and a brick face. The façade to the east was a different condition where the second level steps back 7' from the first level which is accentuated with a slanted sheet metal roof and the walls on both levels are modular aluminum windows with integrated venetian blinds.

Existing gross area: 46,500 Square Feet

MEP SYSTEMS

MECHANICAL

Building is served by campus high pressure steam that enters the building first floor mechanical room in the SE corner of the SE side of the building. The original building plans indicate 2 $\frac{1}{2}$ " HPS and 1 $\frac{1}{4}$ " PC but the campus site utility plan shows 2" HPS and 1 $\frac{1}{2}$ "PC. Building steam services were recently replaced into the building but the heat exchangers and other devices were not replaced. Steam pressure is reduced and is used to produce hydronic heating water with a heat exchanger and also produces domestic hot water with a steam to hot water heater. Steam service is from steam pit SN4.

Hydronic heating water is distributed throughout the existing building and also was extended to the addition. The heating water is used for VAV boxes, CV reheat coils, perimeter fin tube radiation, and other terminal heating devices.



EXISTING GROSS AREA PLANS





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The heating water is also routed to the existing air handling units that are part of the original building. There were two original heating water pumps for the original building. Two additional heating water pumps were added to serve the addition.

The original building had a water-cooled chiller located in the first floor mechanical room with a cooling tower on the second floor. The chiller and cooling tower have been removed and campus chilled water was brought to the building approximately six to seven years ago. Campus chilled water are 6" mains and enter the first floor mechanical room.

There are six air handing units in the original building that have chilled water coils and hot water heating coils. These units are constant volume with reheat coils and perimeter fin tube radiation. The units are hung from structure so access to filters is more difficult. The air handling unit heating coils are pumped and have three-way valves. Some of the air handling units are located above ceilings making access very difficult. Return is ducted back to the air handlers for the original building construction.

Two air handling units that are part of the addition. These units have chilled water coils only and are variable volume with VAV reheat boxes and perimeter heating. The return from the addition is through the corridors which doesn't meet current code requirements.

The supply ducts were lined in the building and campus staff has indicated that it is starting to break down. Ceiling areas around some of the supply diffusers were darker due to the duct lining breaking down and blowing out the diffuser. Staff has tested the indoor air quality and it appears to be fine but they have concerns about the duct lining.

Campus has several standalone dehumidifiers located throughout the building to deal with high humidity issues. These dehumidifiers were in place and running during our walk through in March.

There is a computer room air conditioning unit for the hardware/ software room 151 that has a glycol dry cooler located on the roof. The glycol system indicated makeup water from domestic water. If a leak occurs and goes unnoticed, the domestic water could dilute the glycol water and cause freezing of the glycol. Best practice is to provide a separate glycol fill station to make up any leakage that occurs.

Controls are mainly pneumatic but a few DDC controls with electric actuators were seen due to control valve replacements. The controls compressor is in the main first floor mechanical room and is relatively new.

There are several zones in the building allowing for better temperature control.

PLUMBING

Building is served by a 6" water service that enters the building first floor mechanical room in the SE corner of the SE side of the building. The original building plans show the 6" service splitting to a 2 $\frac{1}{2}$ " domestic water service and a 4" fire protection service. The fire protection service has a gate valve with post indicator through the wall and then an alarm check valve indicated. The water service has a 2" bypass valve. The water service has a pressure reducing valve to reduce the pressure. At the time of the walk through on March 15, 2018 the domestic water pressure was around 72 psi and the fire protection service was around 110 psi.

Fire protection in the building is limited and appears to be only installed in the classroom areas of the original building. No sprinklers were installed in the corridors or office spaces.

The original sanitary system leaves the building with a 4" main out the south side of the building. A 10" storm leaves out the east from the original building. The original building does not have a separate clear water waste and vent system for the cooling coil condensate. The addition does have a clear water waste and vent system for the cooling coil condensate. The clear water waste pipes are connected to the storm piping with backwater valves. The addition has a 4" sanitary main leaving out the north. An 8" storm pipe from a catch basin on the south side of the addition is routed below grade under the addition and the storm from the addition ties into this piping, leaving the building at 12" storm. This 12" storm pipe leaves the addition out the north near the NW corner of the building.

There are sump pumps in the mechanical room and one in the elevator pit. One of the electrical rooms has plumbing piping routed through it and above some of the panels or gear. An emergency eyewash in the main mechanical room has cold water only, not tempered water as required per ANSI. Plumbing fixtures in the bathroom are manual flush valves on the water closets and urinals as well as a manual metered faucet for the lavatory.

There is a vacuum pump system and compressed air system for the nursing lab space which is routed to a few head wall areas.

ELECTRICAL

The building is served by a 1200A, 208V service with older Square D distribution panel and panelboards. The addition is served by more recent, but still older Square D panelboards. All panelboards have minimal numbers of spare and open circuit spaces. These older panels will have trouble with new parts for any renovations. The transformer was recently replaced due to the destruction of the previous transformer vault due to flooding.

Lighting throughout the building is fluorescent, with only a few exceptions in recently renovated classrooms or lecture halls. Only the newly renovated spaces have occupancy sensors. Exterior lighting was recently updated to LED.

The fire alarm system is a Notifier horn system updated within the last decade. Smoke detectors are installed throughout the hallways of the building.

Moisture and corrosion is a common problem with HVAC systems and surfaces, which may mean there is unseen corrosion within conduit and wiring systems.

4_0 **CONCEPTS & EVALUATION**

Concepts Considered

Four primary concepts were evaluated to address current and future facility needs for science and nursing and health sciences at UW-Eau Claire.

The following pages describe these concepts and the pros and cons of each. This report recommends Concept D in two construction phases.

CONCEPT A

Renovation of Phillips Science Hall

Concept A emphasizes the reuse of Phillips Hall in its entirety. The amount of area available in Phillips does not meet the demonstrated need for all departments and academic units, therefore only some departments would be accommodated in the renovation. This concept proposes that Biology, Chemistry, Geology, Materials Science & Engineering, and a portion of Psychology be located in a newly-renovated Phillips. All other departments and academic units would need to be accommodated in remodeled or new space on campus.

Observations on Concept A:

Remodel does not accommodate enough of space need. As shown in the table on the previous page, an additional 125 GSF is needed. Depending on whether space is renovated or newly constructed, costs could range from \$60 million to \$76 million.

- No existing space currently exists on campus to accommodate departments and academic units not housed in a renovated Phillips Hall. As such, new space is planned for these units.
- Even with all new building infrastructure, the building structure is not conducive to modern science lab design. The 12' floor-to-floor would either limit the size of duct work (and likely limit amount of air that could be supplied to laboratories) or ceiling heights would be lower than acceptable by code.
- Additionally, this concept does not achieve the goals for interdisciplinary collaboration.

Significant renovation of the existing building would need be needed to achieve current life safety and laboratory standards, including complete replacement of most of the exterior facade. The space would still be compromised as the existing 12'-0" floor-to-floor height of the structural system severely limits use of the space.

STRUCTURAL SCOPE

Concept A involves a complete remodel to the existing Phillips Hall. This concept would require the building to stay within the design limits of original construction. This would require that lab space maintain a maximum live loading of 50 pounds per square foot.

It shall be noted that the columns at the stairs are poured integrally with the floor system; however, there are options to add steel beams framed to existing structural columns to header off each floor to allow for removal of these columns if required for mechanical space.

The open roof area for access to the observatory and greenhouses will be infilled with metal deck over steel joists.

CONCEPT A **Renovation of Phillips Science Hall**



		CONCEPT A Renovation Phillips					
		Phillips			Not accomodated		
Departments	Net Area	1.82		\$355/sf	1.82		\$400/sf
Biology	37,069 NSF	67,398 GSF	\$	23,926,355			
Chemistry	31,045 NSF	56,445 GSF	\$	20,038,136			
Computer Science	5,665 NSF				10,300 GSF	\$	4,120,000
Geology	11,805 NSF	21,464 GSF	\$	7,619,591			
Geography & Anthropology	10,945 NSF				19,900 GSF	\$	7,960,000
Materials Science & Engineering	22,805 NSF	41,464 GSF	\$	14,719,591			
Physics & Astronomy	16,945 NSF				30,809 GSF	\$	12,323,636
Shared	14,900 NSF				27,091 GSF	\$	10,836,364
Mayo Partnership	10,000 NSF				18,182 GSF	\$	7,272,727
Psychology	3,090 NSF	5,618 GSF	\$	2,247,273			
Nursing	7,676 NSF				13,956 GSF	\$	5,582,545
Mathematics	750 NSF				1,364 GSF	\$	545,455
Watershed	2,100 NSF				3,818 GSF	\$	1,527,273
Total	174,795 NSF	192,389 GSF	\$	68,550,945	125,420 GSF	\$	50,168,000
Total Construction Costs		\$118,718,945					
Total Project (with Soft Costs)	35%	\$160,270,576					

Concept deemed not viable because program cannot all be accommodated

CONCEPT A Renovation of Phillips Science Hall

HVAC

Campus steam and chilled water to Phillips would remain and have adequate capacity to serve the building since overall building area isn't changing. The steam PRV station under Classroom 7 would remain for reuse since it was recently replaced.

It is suggested that the steam and pumped condensate mains that route through the building and underground tunnel be replaced since they were installed in the late 1960s and pipe scaling and rusting have caused blockages in the valves and equipment. The steam service to the building could also be replaced as part of this project or a separate project but would require site work to remove the box conduit or at least the lid and replace the piping from pit SNZ1 to the building.

Campus chilled water piping distribution mains would remain and be reused where possible. Chilled water was brought to the building in 1999. Chilled water would be used to provide cooling for the building. Auxiliary cooling sources such as DX could be provided if required based on the needs of the space but most likely the campus chilled water will be the only source of cooling.

All HVAC within the building would be completely removed and replaced due to the age of the equipment. Steam heat exchangers would be utilized to create hydronic heating water for the building. Redundant heating water pumps with VFDs would be utilized for hydronic heating water distribution. Steam would also be utilized to create domestic hot water. Steam may be utilized at some air handling units for heating or for humidification if required for the spaces. Mechanical equipment room 164 would still be used for some heat exchangers and a PRV station.

NONASSIGNABLE - BLDG CIRCULATION
NONASSIGNABLE - BLDG SUPPORT
UNASSIGNED





CONCEPT A Renovation of Phillips Science Hall









CONCEPT A

Renovation of Phillips Science Hall

Existing air handling rooms 187C, 129B, 377S and 322B will still be utilized for air handlers. Additional air handler/mechanical rooms would be added near the west wing at multiple floors to serve the west wing and potentially a portion of the north wing. The building's low floor-to-floor height will be a challenge so a few extra mechanical rooms with air handlers will help reduce the length or duct routes and help reduce congestion in the ceiling space. All return would be ducted to eliminate use of corridor return but low ceilings or spaces without ceilings may be required in order to achieve ducted return.

The office wing would utilize a new mechanical room with air handling unit in stair 520A along with some shafts down the building to condition the south half of the wing. The north half of the wing may utilize another mechanical room on the fifth floor or a roof-mounted air handling unit.

All air handling units would utilize chilled water and heating water or steam. Steam may be utilized where the entering air temperatures are below freezing or a pumped coil could also be utilized. Systems would be variable air volume on the supply and variable air volume exhaust would also be utilized in the labs to reduce energy. Energy recovery will be utilized where required by code and where cost effective and space allows for the labs. Multiple lab exhaust fans would be manifolded together and utilize VFDs to vary air flow based on usage of space and allow for some redundancy in the fans.

All controls would be DDC with electric actuation. The controls would be Niagara-based to follow campus standards.

PLUMBING

Existing gas service to the building would remain for reuse. Existing water service to the building would remain but a new fire protection service would be routed to the building. All plumbing piping and equipment within the building would be replaced due to the age and condition of the equipment and piping. Existing underground piping is recommended for replacement but the piping could be scoped and determined if it is in acceptable condition to reuse.

Gas, vacuum, air, and deionized and/or reverse osmosis water would be provided where required based on the lab space requirements. All new systems would be installed to provide the vacuum, air, and deionized and/or reverse osmosis water. Domestic hot water would be created using multiple steam water heater and a gas water heater would be provided as a backup for periods of steam shut down. A new acid neutralization basin system would be installed.

FIRE PROTECTION

A new fire protection service would be provided to the building. A double check back flow preventer would protect the city main from the fire protection water. Stand pipes would be installed in any stairs the are more than 30 ft above the lowest level of fire department vehicle access. Water pressure on campus is relatively high but likely not high enough to provide the required pressure in the standpipe. We suggest a manual wet standpipe system so a fire pump is not required but this would need to be reviewed with the AHJ.

ELECTRICAL

The existing footprint of Phillips can support additional electrical load from the distribution panels, but many of the local panels are older and it will be difficult to find replacement breakers or parts to renovate. This will likely require either new panels fed from the existing distribution system or the replacement and rewiring of existing panels. Depending on the current layout of conduits behind walls, rearranging spaces may require rerouting or rewiring of existing electrical wiring even for rooms not being modified.

The lighting of rooms modified during this work can be updated to new LED lighting for energy savings, but rooms being modified will have to receive added automatic controls to comply with current code, with or without new LED lighting. Updating fluorescent lights to LED lights will free up some electrical breakers.

The fire alarm system can be modified and extended to serve the renovated spaces.

Additional generator capacity could be added to serve the building, requiring a larger generator room, triggering updated code requirements, the generator hitting the inflection point of cost effectiveness of natural gas versus diesel, and needing additional emergency electrical panels to serve the dispersed laboratory loads around the building.

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CONCEPT B

Addition and Renovation of Phillips Science Hall

Concept B studied demolition of the office wing in Phillips Hall, with a complete remodel of the remainder of Phillips. An addition provides more space, allowing several departments and academic units to fit in a renovated Phillips except Nursing, Computer Science, and Geography & Anthropology. Again, space for these groups would need to be accommodated through new construction elsewhere on campus.

Observations on Concept B:

Many of the concerns are the same as for Concept A.

- The addition replaces about 28,000gsf of offices with 64,000 GSF and a 16,000 GSF mechanical penthouse. Remodel does not accommodate enough of space need, forcing departments and academic units into separate buildings and thus not achieving the desired interdisciplinary collaboration. As shown in the table on the opposite page, 72,690gsf is still needed elsewhere. Whether the space is renovated or built new, this could mean \$20M \$33M.
- No existing space currently exists on campus to accommodate departments and academic units not housed in a renovated Phillips Hall. And as such, new space is planned for these units.
- The addition would be built with higher floor-to-floor to accommodate mechanical systems, but this will mean that few of the floor levels will be aligned. See section diagram.
- And even with all new building infrastructure, the building structure in the remaining portions of Phillips is not conducive to modern science lab design. The 12' floor-to-floor will either limit the size of duct work (and likely limiting amount of air that could be supplied to laboratories) or ceiling heights would be lower than acceptable by code.

STRUCTURAL SCOPE

Concept B involves demolition of the existing office wing and construction of a new addition in its place. The floor-to-floor height will be approximately 16' and the use of modified existing stairs will be incorporated to connect the levels at existing. This office area will be of similar pan and joist construction with concrete columns spaced approximately 30'-0''+/- with the joists spanning up to 40'+/- to concrete girders. The foundation system will be piles with pile caps.

There will be some remodeling in the existing building to accommodate future needs. It shall be noted that the columns at the stairs should remain as they are poured integral with the floor system, however, there are options to add steel beams framed to existing structural columns to header off each floor to allow for removal of the columns.



CONCEPT B

Addition and Renovation of Phillips Science Hall



		CONCEPT B Addition & Renovation Phillips					
		Phillips & Addition			Not accomodated		
		\$450/sf					
Departments	Net Area	1.82		\$355/sf	1.82		\$400/sf
Biology	37,069 NSF	44,483 GSF	\$	15,791,394	22,915 GSF	\$	9,166,153
Chemistry	31,045 NSF	56,445 GSF	\$	20,038,136			
Computer Science	5,665 NSF				10,300 GSF	\$	4,120,000
Geology	11,805 NSF	21,464 GSF	\$	9,658,636			
Geography & Anthropology	10,945 NSF				19,900 GSF	\$	7,960,000
Materials Science & Engineering	22,805 NSF	41,464 GSF	\$	18,658,636			
Physics & Astronomy	16,945 NSF	30,809 GSF	\$	10,937,227			
Shared	14,900 NSF	27,091 GSF	\$	9,617,273			
Mayo Partnership	10,000 NSF	18,182 GSF	\$	8,181,818			
Psychology	3,090 NSF				5,618 GSF	\$	1,994,455
Nursing	7,676 NSF				13,956 GSF	\$	5,582,545
Mathematics	750 NSF	1,364 GSF	\$	613,636			
Watershed	2,100 NSF	3,818 GSF	\$	1,718,182			
Total	174,795 NSF	245,119 GSF	\$	95,214,939	72,690 GSF	\$	28,823,153
Total Construction Costs		\$124,038,092					
Total Project (with Soft Costs)	35%	\$167,451,424					

CONCEPT B

Addition and Renovation of Phillips Science Hall

HVAC

Similar to Concept A except the office area is not included and a new east wing will be provided. The new east wing will have a large penthouse on the roof with air handling units to serve the addition.

PLUMBING:

Similar to Concept A. New storm and sanitary mains from the new east addition to the building may be required.

FIRE PROTECTION

Same as Concept A.

ELECTRICAL

The new, larger wing of Phillips can be supported by new electrical panels using the spare capacity of the existing main distribution system. Renovation of the existing spaces may require the addition of new panels or the replacement of existing panels. Additional

> NONASSIGNABLE - BLDG CIRCULATION NONASSIGNABLE - BLDG SUPPORT

elevators to serve the floor-to-floor height changes can be fed from the spare capacity on the electrical distribution system, although the emergency generator does not have the capacity to put them on emergency backup. If the new lab spaces are desired to have emergency backup capabilities, the lab will require a larger or additional backup generator and emergency panels, as the original office wing had minimal emergency power. Additional generator capacity could be added to serve the building, requiring a larger generator room, triggering updated code requirements, the generator hitting the inflection point of cost effectiveness of natural gas versus diesel, and needing additional emergency electrical panels to serve the dispersed laboratory loads around the building.

The new rooms will be built with LED lighting and automatic controls, as well as any other space that is renovated. Updating fluorescent lights to LED lights will free up some electrical breakers.

The existing fire alarm system can be extended to the larger wing.







ALTERNATE CONCEPT B

Addition and Renovation of Phillips Science Hall





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CONCEPT C

New Building

Concept C proposes a new building to accommodate all space needs identified. Phillips Hall would be completely re-purposed or demolished. See table (opposite page) for an accounting of space and costs by department.

Observations on Concept C:

- This concept accommodates all of the space needs identified and encourages the most cross-disciplinary interactions.
- The space needs identified for Nursing include only proposed new space for program growth. As a result, Nursing spaces and functions would be spread over two buildings (Nursing Building and New Science). In the future, campus could consider renovation of Nursing Building as a separate project.
- The space needs identified for Psychology include only animal research related functions. Other departmental spaces on campus would remain.

CONCEPT C New Building



Renovation New Construction - Single Phase / Phase 1 New Construction - Phase 2 Demolition - Single Phase / Phase 1 Demolition - Phase 2

CONCEPT C | New Building

Departments	Net Area	1.82 \$450/sf			
Biology	37,069 NSF	67,398 GSF \$ 30,329,182			
Chemistry	31,045 NSF	56,445 GSF \$ 25,400,455			
Computer Science	5,665 NSF	10,300 GSF \$ 4,635,000			
Geology	11,805 NSF	21,464 GSF \$ 9,658,636			
Geography & Anthropology	10,945 NSF	19,900 GSF \$ 8,955,000			
Materials Science & Engineering	22,805 NSF	41,464 GSF \$ 18,658,636			
Physics & Astronomy	16,945 NSF	30,809 GSF \$ 13,864,091			
Shared	14,900 NSF	27,091 GSF \$ 12,190,909			
Mayo Partnership	10,000 NSF	18,182 GSF \$ 8,181,818			
Psychology	3,090 NSF	5,618 GSF \$ 2,528,182			
Nursing	7,676 NSF	13,956 GSF \$ 6,280,364			
Mathematics	750 NSF	1,364 GSF \$ 613,636			
Watershed	2,100 NSF	3,818 GSF \$ 1,718,182			
Total	174,795 NSF	317,809 GSF \$ 143,014,091			
Total Construction Costs		\$143,014,091			
Total Project (with Soft Costs)	35%	\$193,069,023			

CONCEPT C

New Building

STRUCTURAL SCOPE

Concept C involves complete demo of the existing Phillips Hall and construction of a new building to serve future needs. The structure will consists of five stories above grade (including a mechanical penthouse). The building, which will house teaching and research labs, offices, and classrooms, will be constructed utilizing a cast-in-place, conventionally reinforced concrete frame with a wide module pan and joist system. Typical bay spacing in the lab and classroom portion of the building will be $25'-0'' \times 40'$ pending further investigation. Girders will typically be 36" wide x 28" deep (interior and perimeter), joists between grids will be 18" wide x 28" deep (24" x 66" pan + 4" slab) at 6'-0" on center, joists on grids will be 22" wide x 28" deep. Columns will be 24" x 24". The joist depth in the office area will be 21" deep, girders and perimeter beams will remain 28" deep. Girder and joist bottom of concrete elevations will typically match for maximum economy, efficiency, and compatibility with MEP systems. However, there may be limited areas where a deeper girder or joist may be required, including at longer exterior spans and at joists acting as transfer beams for the penthouse roof framing. Stairs will be structural steel-framed with a metal deck roof. The mechanical penthouse will be structural steel-framed with a metal deck roof. Typical grid spacing is 25'-0" on center in the direction of the girder span and 24' in the direction of the joist span. Typical floor-to-floor height will be approximately 16 feet. Exterior walls will consist of brick with metal stud backup.

The new building shall be designed for current building codes and will ensure safe occupancy for the required use of the structure.

нуас

There currently is no chilled water extended to the area of campus where the new building is being proposed. Chilled water would need to be extended from the 16" chilled water mains to the west of the Old Library Building. Chilled water will be distributed to air handling units and any process equipment that requires chilled water.

There is a 12" HPS/6"PC main located along Garfield Avenue that currently serves Putnam Hall from Steam Pit 9 and Thomas Hall from Steam Pit 10. Since these buildings are planned for removal, steam could be extended from either of these pits to serve the new Science Building. Multiple steam heat exchangers will provide heating water for the building. Heating water will be distributed to terminal units, perimeter heating, and air handling coils. Redundant heating water pumps on VFDs will distribute heating water. Steam may be utilized at air handling units with low mixed air temperatures. Variable air volume air handlers and energy recovery will be utilized. Variable air volume exhaust systems will be used for the lab exhaust with manifolded fans for redundancy.

The existing campus steam loop is routed through Phillips Hall and would need to be maintained after demolition.

PLUMBING

A new gas service would be extended from Garfield to the building. Gas would be utilized for laboratory use as well as backup domestic water heaters when campus steam is shut down.

An existing 6" water main located on the site would need to be relocated based on the location of the new building. A new combined domestic water/fire protection service would extend to the building from the water main.

Putnam and Thomas Hall both have 6" sanitary laterals connected to a 10" sanitary main. The 10" sanitary mains should be adequately sized for the new building. Depending on the building layout, it may be possible to extend the 6" sanitary laterals that currently serve Putnam and Thomas to the new building.

Thomas Hall has a 6" storm main routed out to the north to the river and Putnam Hall has an unknown storm pipe routed south to the creek. The new building may be able to utilize these pipes or new storm could be routed to either the creek or the river depending on the site.

All necessary air compressors, vacuum pumps, deionization or reverse osmosis systems, and acid neutralization systems would be provided for the building with redundancy where required by owner requirements. A water pressure booster system is not anticipated based on existing water pressures in the area.

FIRE PROTECTION

The building would be fully sprinkled. The fire protection service would have a double check backflow preventer. Stand pipes would be installed in any stairs the are more than 30 ft above the lowest level of fire department vehicle access. The water pressure on campus is relatively high but likely not high enough to provide the required pressure in the standpipe. We suggest a manual wet standpipe system so a fire pump is not required but this would need to be reviewed with the AHJ.

ELECTRICAL

A new building can be designed for the expected electrical loading plus future flexibility, with a new distribution system. With the removal of Phillips Hall and the residence halls, the campus has the capacity for this building's electrical load. An all-LED and automatic control system will reap large energy savings over older fluorescent lighting schemes. A new fire alarm system would be fully addressable with the option of moving to a voice alarm system instead of a basic horn system. The building could be designed with a large emergency backup system in place.

The incoming electrical service would be installed during phase one and sized for both phases. Backup electrical connections will be sized for both phases, but during phase one either a generator set would be sized for both phases or sized only for phase one with the expectation of adding a parallel generator during phase two.

CONCEPT D

New Buildings

A single new building is expected to be outside the scope of current financial possibilities. A phased approach is recommended. Note the following observations about phasing the new building.

- This concept, like Concept C, accommodates all of the space needs identified encouraging cross-disciplinary interactions in a two-phased project.
- The space needs noted for the Nursing Department include only additional growth space. Renovation of the existing space in the Nursing Building, about 46,500 GSF, would still need to occur outside of the scope of this project. It could be considered a third phase.
- The space needs noted for Psychology include only proposed space for the animal research facility and related spaces. This concept does not include any renovation of existing Psychology space.
- Further study is required to determine the best functions, uses, and departments to be included in each phase, but for the purposes of this study, the higher intensity sciences of Chemistry, Geology, Physics, and Materials Science & Engineering are included along with the Mayo Clinic collaborative space. Phase two then includes Biology, Psychology, Watershed, shared spaces like classrooms and the maker space, and lower (building systems) intensity spaces of Geography/Anthropology and Computer Science.

The structural, mechanical, and electrical design intent for two-phased buildings is the same as one building. See previous pages for description of Concept C scope. Specific implications would need to occur in a later design phase, such as if one large generator would be installed in phase one versus a generator in each phase.

CONCEPT D New Buildings



Renovation New Construction - Single Phase / Phase 1 New Construction - Phase 2 Demolition - Single Phase / Phase 1 Demolition - Phase 2

		CONCEPT D New Buildings Phased					
		Phase 1			Phase 2		
Departments	Net Area	1.82		\$450/sf	1.82		\$450/sf
Biology	37,069 NSF				67,398 GSF	\$	30,329,182
Chemistry	31,045 NSF	56,445 GSF	\$	25,400,455			
Computer Science	5,665 NSF				10,300 GSF	\$	4,635,000
Geology	11,805 NSF	21,464 GSF	\$	9,658,636			
Geography & Anthropology	10,945 NSF				19,900 GSF	\$	8,955,000
Materials Science & Engineering	22,805 NSF	41,464 GSF	\$	18,658,636			
Physics & Astronomy	16,945 NSF	30,809 GSF	\$	13,864,091			
Shared	14,900 NSF				27,091 GSF	\$	12,190,909
Mayo Partnership	10,000 NSF	18,182 GSF	\$	8,181,818			
Psychology	3,090 NSF				5,618 GSF	\$	2,528,182
Nursing	7,676 NSF				13,956 GSF	\$	6,280,364
Mathematics	750 NSF				1,364 GSF	\$	613,636
Watershed	2,100 NSF				3,818 GSF	\$	1,718,182
Total	174,795 NSF	168,364 GSF	\$	75,763,636	149,445 GSF	\$	67,250,455
Total Construction Costs		\$75,763,636			\$67,250,455		
Total Project (with Soft Costs)	35%	\$102,280,909			\$90,788,114		

5.0 APPENDIX

- 5.1 Proposed Phasing Schedule
- 5.2 Existing Floor Plans by Department
- 5.3 Existing Floor Plans by Room Function
- 5.4 Meeting Minutes

PHASED REMODELING CONCEPT

TASED REMODELING CONCELL					
	YEA	٨R	YEAR		YEAR
	JFMAMJ	JASOND	JFMAMJJA	SOND	J F M A M J J A S O N D
State Budget Development Cycles		_			
Feasibility Study				Ť	
Preliminary Project Request to UWS (All Phases)					
Pre-Design - All Phases			10		
Phase 1					
Project Request				•	•
Enumeration					*
A/E Selection					
Preliminary Design					6
Final Design					
Bidding and Construction					
Phase 2					
Project Request					
Enumeration					
A/E Selection					
Preliminary Design					
Final Design					
Bidding and Construction					
Phase 3					
Project Request	7				
Enumeration					
A/E Selection					
Preliminary Design					
Final Design					
Bidding and Construction					



PROPOSED PHASING SCHEDULE



65

5.2

EXISTING FLOOR PLANS BY DEPARTMENT

University of Wisconsin-Eau Claire Science Programs Feasibility Study | JULY 2018





01/18/18 UW-EAU CLAIRE SCIENCE PROGRAM - FEASIBILITY STUDY # 3.2017246.00





MATERIALS SCIENCE & ENGINEERING

NONASSIGNABLE - BLDG CIRCULATION NONASSIGNABLE - BLDG SUPPORT

PHYSICS & ASTRONOMY

B V B R



01/18/18 UW-EAU CLAIRE SCIENCE PROGRAM - FEASIBILITY STUDY # 3.2017246.00

PHILLIPS HALL - THIRD LEVEL - EXISTING DEPARTMENT

- BIOLOGY
 GENERAL ASSIGNABLE
- NONASSIGNABLE BLDG CIRCULATION
- NONASSIGNABLE BLDG SUPPORT

01/18/18 UW-EAU CLAIRE SCIENCE PROGRAM - FEASIBILITY STUDY # 3.2017246.00

8 8 8 8



PHILLIPS HALL - FIFTH LEVEL - EXISTING DEPARTMENT

- BIOLOGY CHEMISTRY GEOLOGY
- NONASSIGNABLE BLDG CIRCULATION

₪ V B R



01/18/18 UW-EAU CLAIRE SCIENCE PROGRAM - FEASIBILITY STUDY # 3.2017246.00 PHILLIPS HALL - SECOND LEVEL - EXISTING DEPARTMENT

- GENERAL ASSIGNABLE
 GEOGRAPHY & ANTHROPOLOGY
 GEOLOGY
 NONASSIGNABLE BLDG CIRCULATION
 NONASSIGNABLE BLDG SUPPORT
 PHYSICS & ASTRONOMY

B V B R



01/18/18 UW-EAU CLAIRE SCIENCE PROGRAM - FEASIBILITY STUDY # 3.2017246.00

PHILLIPS HALL - FOURTH LEVEL - EXISTING DEPARTMENT



- NONASSIGNABLE BLDG CIRCULATION
- NONASSIGNABLE BLDG SUPPORT
TRUE NORTH 03/15/18 UW-EAU CLAIRE SCIENCE PROGRAM - FEASIBILITY STUDY # 3.2017246.00

40

E

B V B R



PHILLIPS HALL - SIXTH LEVEL - EXISTING DEPARTMENT



5.3

EXISTING FLOOR PLANS BY ROOM FUNCTION

University of Wisconsin-Eau Claire Science Programs Feasibility Study | JULY 2018

4 TRUE NORTH









X02 JANITOR ROOM.	W06 PULIC CORRIDOR	W04 LOADING DOCK	W02 ELEVATOR	620 EXHIBITION	350 CONFERENCE ROOM	315 OFFICE SERVICE	310 OFFICE	255 RESEARCH LABORATORY SERVICE	250 RESEARCH LABORATORY	215 CLASS LABORATORY SERVICE	210 CLASS LABORATORY	110 CLASSROOM

PHILLIPS HALL - FIRST LEVEL - EXISTING ROOM FUNCTION

40 TRUE NORTH





X03 PUBLIC RESTROOM Y04 UTILITY/MECHANICAL SPACE	X02 JANITOR ROOM.	W06 PULIC CORRIDOR	350 CONFERENCE ROOM	315 OFFICE SERVICE	310 OFFICE	255 RESEARCH LABORATORY SERVICE	250 RESEARCH LABORATORY	215 CLASS LABORATORY SERVICE	210 CLASS LABORATORY	110 CLASSROOM	

PHILLIPS HALL - SECOND LEVEL - EXISTING ROOM FUNCTION





REPARATION 301A 156 SF

DRYING ROOM 305 335 SF

> LABORATOR 307 3√2 SF

PREPARATION 309A 203 SF

Ы

BIOLOGY LABORATOF 301 678 SF

A & PLAB 303 954 SF

206 SF

HUMAN BIOLOGY LAB 309 1,185 SF

INTROINEURO LAB 311 1,382 SF

747 SF

HALL 694 SF

Y04 UTILITY/MECHANICAL SPACE	X03 PUBLIC RESTROOM	W06 PULIC CORRIDOR	350 CONFERENCE ROOM	315 OFFICE SERVICE	310 OFFICE	255 RESEARCH LABORATORY SERVICE	250 RESEARCH LABORATORY	215 CLASS LABORATORY SERVICE	210 CLASS LABORATORY	110 CLASSROOM

PHILLIPS HALL -THIRD LEVEL - EXISTING ROOM FUNCTION





110 CLASSROOM
210 CLASS LABORATORY
215 CLASS LABORATORY SERVICE
250 RESEARCH LABORATORY SERVICE
310 OFFICE
310 OFFICE SERVICE
350 CONFERENCE ROOM
W06 PULIC CORRIDOR
X03 PUBLIC RESTROOM
Y04 UTILITY/MECHANICAL SPACE

PHILLIPS HALL - FOURTH LEVEL - EXISTING ROOM FUNCTION

B V B R









5 10 20 40





PHILLIPS HALL - SIXTH LEVEL - EXISTING ROOM FUNCTION

5.4 MEETING MINUTES

BWBR

Meeting Minutes

DATE October 9, 2017

PROJECT University of Wisconsin -Eau Claire Sciences Feasibility Study

BWBR COMMISSION NO. 3.2017246.00

TO Jake Ehmke, Wisconsin DFD
 Mike Rindo, UWEC Asst. Chancellor
 Chris Hessel, UWEC Facilities
 Troy Terhark, UWEC Facilities
 Renee Strehlau, UWEC Facilities
 Cathy O'Hara Weiss, UW System

Kris Cotharn, IMEG Tom Hanley, BWBR Stephanie McDaniel, BWBR Brian Lapham, BWBR

Note: Names in **bold** indicate attendance

FROM Brian Lapham 651.290.1878 blapham@bwbr.com

SUBJECT 2017-10-09 Meeting Minutes: Scoping | Kick-off

The following notes represent BWBR's understanding of this meeting. If you have any questions, comments or additions, please notify the author immediately in writing.

NO.	ISSUE	ACTION BY
	New Business	

1.01 Purpose of the meeting was to review the scope for the UWEC and confirm the goals of this Feasibility Study, which BWBR will use to develop a proposal for design services.

- 1.02 DFD distributed some documents:
 - A. Task list for developing the "program statement". BWBR and DFD agreed this is just a guide, not strict requirements.
 - B. Request for Services
 - C. Agenda
 - 1. Renee and Cathy will be the primary contacts for BWBR. Stephanie McDaniel will be the primary contact from BWBR.
 - 2. DFD notes a desire to be copied on all emails.
- 1.03 BWBR led a discussion about project scope possibilities (see attached presentation).
- 1.04 Phillips Hall Campus is currently completing a Physical Conditions Assessment (PCA) for Phillips Hall, which will be provided to the design team. BWBR will need to have this information available upon commencement of their services. Desire to add structural review- specifically designed loading (psf) and concrete rebar cover, for understanding fire rating capacity to the scope of that PCA. In 1999, Phillips Hall had about a \$10M project for MEP upgrades.

Nursing Hall – a Physical Conditions Assessment was previously completed. Campus will forward this to design team.

Hibbard Hall – This building is not included in the study, other than to consider the degree to which Psychology, Mathematics and Computer Sciences will be included in the scope of renovation / new construction of Phillips or Nursing Halls. IMEG / BWBR will provide a proposed fee for this additional service.

NO. ISSUE

ACTION BY

- 1.05 The study will include high-level cost-per-square-foot cost estimates, not specific "take-off" estimates. Example: cost per s.f. cost will be used to replace entire building electrical system if deemed necessary, but estimating for selective electrical replacement is not expected in this scope of work.
- 1.06 Space Needs Analysis: this is not a Programming effort. This effort will include creation of a space tabulation to understand what space is desired or required to meet current pedagogies. The assumption is the Programming would be part of a future Pre Design effort once the project is enumerated.
 - A. Campus noted an interest in reviewing existing lab utilization.
 - B. UW System noted the classroom baseline is going up to 40 hours/week from 35 hours/week. For labs, the usage went up also, UW System will confirm that change.
 - 1. Campus noted labs are used outside of scheduled times. UW System desires a method to quantify this time. Each department to provide data to BWBR. In teaching labs (time spent per courses) and research labs (number of students). This may also require some additional adjacent prep spaces.
- 1.07 Scope of service and deliverables for feasibility study were discussed, as described in the attached presentation:
 - A. Regarding comment in request about "foundations", group agreed BWBR team will look at existing boring information to determine if there is a need to include a specialized foundation assumption in the cost estimate.
 - B. Historic and Zoning analysis will all be a high level review.
 - C. The Code Analysis, will also provide high level analysis for "fatal flaws" considering the proposed methods of repurposing in buildings being studied. The presumption is other code issues would be addressed during remodeling.
- 1.08 The campus masterplan noted some previous concepts for addressing the sciences at UWEC.
 - A. This Science Feasibility Study will be another fresh look at the needs. Engineering and pre-professional programs have been added since the masterplan.
 - B. Nursing will remain on campus. Considerations for locations on Clairemont Ave. and/or Marshfield Clinic will not be included in the study.
 - C. Some discussion of a shared simulation center was discussed. Further discussion is required, but this study will only focus on the renovation or replacement of the buildings noted above.
- 1.09 Planning concepts will not show specific rooms, but blocks of departmental level space on plans.
- 1.10 Information to be provided by UWEC:
 - A. Physical Condition Assessment. Campus has rough drafts without fire protection nor structural review requested in this meeting. Campus to confirm when the assessment will be available. Campus to send rough draft to BWBR/IMEG.
 - B. 2010 Master Plan documents (BWBR downloaded from web site)
 - C. Enrollment data for campus, programs, and majors. Back to 2010 would be sufficient.
 - D. Desired program delivery changes, including forecast of future degree programs
 - E. Existing floor plans in CAD. Campus has PDF's. For Phillips Hal, Hibbard Hall, and Nursing.
 - F. Subsurface information. DFD to send geotechnical report from Garfield Ave project. DFD to look for more information on other adjacent recent projects.
 - G. Space records of existing space including square foot and space use codes

NO. ISSUE

ACTION BY

- H. Class registration and scheduling data. Desire for spring and fall semester for the past two years.
- I. Classroom demand analysis (UWSA format). UWEC/UWSA noted the team may need to calculate this. UWSA noted when this was attempted previously there were some errors. Campus to send to UWSA also for review.
- J. In proposal, BWBR to include Hibbard Hall physical conditions assessment by IMEG.
- K. Campus has a condition assessment done within the last ten years. Campus to send to BWBR.
- 1.11 Campus to confirm who the decision-making team will be. Campus noted there is likely a subgroup of decision making Core Team within the larger Project Committee.
- 1.12 Schedule- the group agreed the schedule as indicated in the presentation (attached) is acceptable. BWBR will include in the Proposal.

1.13 Next steps

- A. BWBR to prepare proposal for DFD.
- B. BWBR to schedule Workshop 1. Campus to provide names of attendees.

BL/jn

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Attachments: UWEC Science Programs Feasibility Study_with notes

BWBR

Meeting Minutes

DATE January 23, 2018

SUBJECT / PROJECT UW-Eau Claire Science Feasibility Study

BWBR COMMISSION NO. 3.2017246.00

TO Mike Rindo, UWEC - Assistant Chancellor Mike Carney, UWEC – Associate Vice Chancellor Paula Neff, UWEC – Biology Chris Hessel, UWEC Assoc Director Facilities Doug Matthews, UWEC – Psychology Erik Hendrickson, UWEC – Physics Cathy O'Hara Weiss, UW System Jake Ehmke, State of Wisconsin Renee Strehlow, UWEC Campus Planner Mark Zobitz, Mayo Health System Brandon Yates, UWEC student

Stephanie McDaniel, BWBR Brian Lapham, BWBR

FROM Brian Lapham 651.290.1878 blapham@bwbr.com

SUBJECT 2018-01-18 Meeting Minutes: Workshop 1

Me bel aste	eting participants and sessions attended are listed ow. The core group members are noted with an erisk (*).	Plenary	Geography & Anthropology	Physics/Astronomy	Geology	Mathematics	Biology	Inter-departmental	Materials Science & Engineering	Computer Sciences	Psychology	Chemistry	Core Group Summar
	*Mike Rindo, UWEC - Assistant Chancellor	х											х
	*Mike Carney, UWEC – Associate Vice Chancellor	х											х
	*Paula Neff, UWEC - Biology	х					х						
	*Chris Hessel, UWEC Assoc Director Facilities Operation	х			х		х						х
	*Doug Matthews, UWEC – Dept. Chair Psychology	х									х		
	*Erik Hendrickson, UWEC – Physics	х		х									х
	*Cathy O'Hara Weiss, UW System	х				х	х	х			х	х	х
	*Jake Ehmke, State of Wisconsin	х	x	х	х	х	х	х	х	х	х	х	
	*Renee Strehlow, UWEC Campus Planner	х	x	х	х	х	х	х	х	х	х	х	х
	*Mark Zobitz, Mayo Health System												
	*Brandon Yates, UWEC student							х	х	х	х	х	х
	Paul Kaldjian, UWEC – Geography		х										
	Turner Howard, UWEC – Physics			х									
	Lyle Ford, UWEC – Physics			х									
	Brian Mahoney, UWEC – Geology				х								
	Lori Snyder, UWEC – Geology				х								
	Sarah Vitale, UWEC – Geology				x								
	Kent Syverson, UWEC – Geology				х								

2018-01-18 Meeting Minutes: *Workshop 1* UW-Eau Claire Science Feasibility Study January 23, 2018 Page 2 of 16

	Plenary	Geography & Anthropology	Physics/Astronomy	Geology	Mathematics	Biology	Inter-departmental	Materials Science & Engineering	Computer Sciences	Psychology	Chemistry	Core Group Summary
Robert Lodge, UWEC – Geology				х								
Phil Ihinger, UWEC – Geology				х								
Alex Smith, UWEC – Mathematics					х							
Abra Brisbin, UWEC – Mathematics					х							
Aba Mbirika, UWEC – Mathematics					х							
Jamie Lyman Gingerich, UWEC – Biology						х						
Derek Gingerich, UWEC - Biology						х						
Chrystal Del Valle, UWEC – Biology						х						
Evan Weiher, UWEC - Biology						х						
Julie Anderson, UWEC – Biology, Health Career Services						х	х					
Tali Lee, UWEC – Biology						х						
Dan Herman, UWEC – Biology						х						
Karen Mumford, UWEC – Watershed Institute							х					
Mel Kantor, UWEC – Institute for Health Sciences							х					
Chris Johnson, UWEC – Computer Science									х			
Heather Amthauer, UWEC – Computer Science									х			
Michelle Cicha, UWEC – Computer Science									х			
Jack Tan, UWEC – Computer Science									х			
Jenny Dahl, UWEC – Chemistry											х	
Cheryl Muller, UWEC - Chemistry											х	
Scott Bailey-Hartsel, UWEC – Chemistry											х	
Warren Gallagher, UWEC – Chemistry											х	
David Lewis, UWEC – Chemistry											х	
Bart Dahl, UWEC – Chemistry											х	
Kurt Wiegel, UWEC – Chemistry											х	
Stephanie McDaniel, BWBR	Х				Х	Х			Х	х	x	Х
Brian Lapham, BWBR	Х				х	х			Х	х	х	х

The following notes represent BWBR's understanding of this meeting. If you have any questions, comments or additions, please notify the author immediately in writing.

NO.	ISSUE	ACTION BY
	New Business	

1.01 Plenary

- A. BWBR presented to the Core Group with the following agenda (see attached presentation for more information)
 - 1. Introductions
 - 2. Feasibility Study Objectives
 - 3. Process/Overall Schedule
 - 4. Introduce Departmental Meetings
 - 5. Trends in higher education and lab planning
 - 6. Next Steps
- B. BWBR described the intent of subsequent meetings with each department. UWEC noted the following groups should be included also:
 - 1. Materials Science & Engineering
 - 2. Watershed
 - 3. Environmental Science & Public Health
- C. UWEC provided other comments, such as the following additional items to consider in the feasibility study process:
 - 1. UWEC possibly substantially increasing the size of the nursing department. State of WI is facing a dramatic shortage of nursing.
 - 2. The new Mayo Research partnership will need to be considered in this study.
 - 3. UWEC is very research intensive at the undergraduate level. "The Center of Excellence for Faculty and Undergraduate Student Research Collaboration was established at UW-Eau Claire in 1988 by action of the Board of Regents of the University of Wisconsin System. This Center was built on a quarter-century tradition of engaging students in collaborative research with faculty scholars and incorporating research into the undergraduate experience." -UWEC Website
 - 4. The study may need to recognize that sciences may need to use other existing classrooms on campus. For example, the study might suggest existing classroom space in Phillips Hall is not re-created in a renovated/new science building, but relocate/renovated elsewhere on campus.
 - 5. An academic master plan has been finalized, but is not overly specific on what the growth of various programs are. It describes how to evaluate new programs.
 - 6. Desire to keep the "conversation spaces"... Physics has been cited as a good example for how you build a physics department.
 - 7. UWEC ideally would like the study to include a plan for expansion space. This will be a challenge with the State.
 - 8. Research is required for faculty tenure.
- D. BWBR led an exercise to answer the question "Ten years out... How will we know this project has been successful?" All participants provided answers and BWBR led an effort to group similar answers. See below "Core Group Summary" meeting for more information and the attached "...Core Group Summary.pdf" for the first draft of a bulleted list of Project Vision statements crafted from this exercise.

1.02 **Departmental Meetings**

A. BWBR led meetings with departments impacted by this study. The purpose was to validate existing plans and course data and understand the vision and potential

NO.	ISSUE			ACTION BY
		growth	of each department. This study does not include a full programming nor	
		predesig	jn effort.	
	В.	The follo	owing were questions poised to the departments. BWBR did not collect	
		specific	answers for each question. See below for notes from each department.	
		1.	How do you envision that your curriculum will change over the next five (5)	
			years?	
		2.	What are you currently doing that is enhancing student learning outcomes?	
			a. How is your physical space supporting that?	
			b. How can the physical space better support the pedagogies you are	
			using or desire to use?	
			c. How can we achieve pedagogical goals ?	
		3.	What collaborative opportunities can we create?	
			a. With which departments/groups do you collaborate most?	
			b. With which departments/groups do you desire to collaborate in the	
			future?	
		4.	How can we achieve the room utilization goals?	
			a. What spaces are no longer functional?	
			b. What additional spaces do you need?	
1 0 0	-			
1.03	Geogra	phy & An	thropology	
	А.	General	comments:	UWEC
		1.	Outsome of curricular program review:	
		C	Anthropology minor was suspended because couldn't hire to replace a	
		۷.	retiring professor	
		С	No major in Anthropology as System decided to keep that at other schools:	
		J. ∕I	Anthropology courses now cross taught with geography:	
		-т. 5	Do have Anthropology certificate with cross-listed geography,	
		5.		
		6	Known as a "discovery" major not "destination" like nursing/biology:	
		0. 7.	Typically up to four (4) new students per year but graduate forty (40)/year	
			consistently.	
		8.	Started outreach program four (4) years ago. See 2-5 new students each year	
			from those effort.	
		9.	Biggest undergrad geography program in Midwest west of Ohio. Bigger than	
			Madison, MN, etc.	
		10.	Student comes to our program and are required to combine nature with	
			society and culture with technology.	
		11.	Use of UAV and UAS technologies are growing.	
		12.	Enrollment grown 60% since 2008. On verge of 150 majors;	
		13.	Physical/cultural, geo-spatial, GIS;	
		14.	Three (3) comprehensive majors:	
			1. Geography Environmental major	
			2. Geography Transnational major (used to be international)	
			3. Geography Geospatial major. Launched fall 2016. Twenty twenty-	
			five (20-25) majors now.	
	В.	Spaces/I	Needs:	
		In additi	on to maintaining all current departmental spaces, the following items were	
		noted:		

- 1. Space is defining for our geography major. Having dedicated space is critical for our identity.
- 2. Currently have priority scheduling for Phillips Hall classroom 265

NO.	ISSUE			ACTION BY
		3.	Phillips Hall Seminar room 267. Were once told could have for office space	
			but then budget cuts meant didn't need it; room leaks from above.	
		4.	Teaching computer labs 275, 268. Ned powerful computers for software;	
		5.	Desire for the department to be cartographers for Chippewa Valley. Relation	UWEC
			to courses/spaces? UWEC to confirm. Increased geospatial majors?	
		6.	Student internships are developing in a way that the students can do an	UWEC
			internship right here on the UWEC campus with these computers. Relation to	
			courses/spaces? UWEC to confirm.	
		7.	Have their own department server. Housed and maintained by Learning and	
		0	Technology Services (LTS);	
		8.	Active Learning Classroom 281. Technology has some lags that are	
			frustrating. Teaching station is in center of room and not moveable is	
			awkward. Have grown to like the Active Learning Classroom on their floor.	
			Group learning is great.	
		9.	Currently rent space at Menards for field storage equipment. Soils, ground	
			penetrating radar, GPS units, etc. Desire a place to store, sort, and check out	
			field equipment.	
		10.	Desire space to store the UAV.	
		11.	Sharing the outdoor garage space with biology and geology currently.	
		12.	Ideal lab size 20-22 students.	
		13.	Geography 104 lab in Phillips 007 (161 seats). Then lab 23-27 students in Lab	
			283.	
	C	Collabo	ration.	
	С.	1	Collaborate with biology-sharing field equipment-but usually needed at the	
			same time. Field equipment breaks. Hard to share as it relates to funding	
			replacements;	
		2.	Collaborate closely with Biology and Geology. Starting relationships with:	
			Women's' studies, Latin American studies, Criminal Justice, Public History,	
			Indian American History, Education, Business and others to come.	
1.04	Physics	& Astron	nomy Comments:	
	А.	General 1	Program has been stable. Lab spaces we have now we've been using for	
		1.	more than 30 years. Eaculty have retired/left and not been replaced. Limited	
			faculty hampers attempts to make changes in the program	
		2	One faculty member has taught in the current Active Learning Classroom, but	
		۷.	haven't thought about larger scale active learning classrooms	
		3	Would like to develop an engineering physics program like UW Madison's	
		5.	Engineering Physics major. Madison's engineering physics program. Bit of a	
			"jack of all trades" type of engineering. UWEC's could involve mechanical.	
			fluids, optical, electrical, robotics, structures? Several questions about this. For	
			now, consider one additional large lab room. Reclaiming storage space for	
			some maker spaces right now. Potentially dual-purpose current labs;	
			Crease every structure of the Division Of Astronomy that we define the structure of the	
			Spaces currently used by Physics & Astronomy that would also be used by an Engineering Physics major.	

- a. Digital Fabrication CNC mill, laser cutting, (sharing equipment with Materials Science).
- b. Electronics labs could also be used for the engineering.
- 4. One hundred fifty (150) majors including pre-engineers. Graduate about 20-30/year. "Nationally a top ten physics department".

B. Spaces/Needs:

In addition to maintaining all current departmental spaces, the following items were noted:

- 1. Planetarium
 - a. Has been closed for last few years.
 - b. Physics has data about 5,000 visitors/year when it was being used. In the past have used for public outreach: 4000 grade school students per year. 1000 students per year on campus.
 - c. Used as a teaching classroom (fifty 50 seats) for planetarium functions. Desire for one hundred (100) seats.
 - d. Systems are very old. Future planetarium should be state of the art.
- 2. Wood shop, metal shop, digital fabrication shop (as noted above). Currently have wood shop (closet, not good enough), metal shop (undersized) and digital fabrication shop. Ok to share with others. Would like to keep those. See plans for locations. Desire for physics shops near each other. Wood and metal shops must be separated.
- 3. Astronomy lab has different equipment than physics labs. Set up time means having a separate lab is desired.
- 4. Student "3rd Space" Seminar room
 - a. Report for "Career Pathways Project" demonstrates why some programs do well: having a "3rd space" students of the department can "own".
 - b. At UWEC, alumni sponsors a scholarship for a leader in the seminar room.
- 5. Every student is required to have a research project to graduate, so research space important.
- 6. Six (6) teaching labs—see attached plans. Some have push-button door codes, students can access anytime for their independent projects.
- 7. Student research project space desired.
- 8. Roof deck telescope stations (Room "600") and observatory.
- 9. Department does not have, nor do they anticipate getting, a permit to use radioactive material.
- 10. Optics adjacency between teaching lab and research labs is great. Not desirable to have it be the same space.
- 11. Space for contests like robots, contraptions.
- 12. Rooms 204 and 105 are also used for independent projects. Department desires a new separate project room.
- C. Collaborations
 - 1. Materials Science and Engineering started from Physics and Chemistry. Collaborate with Physics/Astronomy.
 - 2. Collaborate with Materials Science, especially use of their 3D printers.

1.05 Geology

- A. General Comments
 - Geology has ninety-two (92) majors (students) right now. About ninety-one hundred five (90-105) majors over the last five (5) years. Previously fiftyseventy (50-70);
 - 2. Becoming a "destination" school for geology helping enrollment.
 - Grant awarded in fall of 2014 for responsible mining, environmental, and regulatory adjacencies like DNR. Internships were twenty (20) last summer. Previously 2-3.
 - 4. Majors:
 - 1. Geology General (biggest, liberal arts)
 - 2. Hydrogeology emphasis (significant enrollment)

- Environmental Science emphasis
- Earth Science teaching (likely not to be offered sometime)
- 5. Dual engineering (with UMN Twin Cities)
- B. Spaces/Needs:

3.

4.

In addition to maintaining all current departmental spaces, the following items were noted:

- 1. Teaching Labs reviewed (see plans).
- 2. Computer Lab 280 several pieces of software for department studios. Punch code for 24 hour access.
- 3. Research spaces:
 - a. Share Suite 108 with Materials Science. Geochemical Instrumentation Complex
 - b. Suite 118, 127 B sample processing. Loud, dirty spaces. Could be in the basement
- c. Room 485 was renovated about 15 years ago for chemistry/geology
- 4. Desire additional storage space.
 - Desire climate controlled storage for field equipment. Could be shared. Also need garage space (non climate controlled), ~200sf.
 - b. Desire more space for maps (currently used with Room 283).
- 5. High value on field instruction. Need outdoor area to stage trips with multiple (five) vehicles.
- 6. Desire dedicated space for hydrogeology teaching and research. Currently split across many rooms.
- Desire better functioning loading dock. Field storage space adjacent to loading dock and garage. Double door needed for bringing in palettes. Would be nice to have the rock crushing room adjacent to the loading dock.
- 8. Department requires students to use teaching lab spaces outside of course hours for research projects.

1.06 Mathematics

- A. General Comments
 - 1. Department has 300+ majors. 41% participate in research. 25% have a math internship.
 - 2. Have the following Majors (M) and minors (m)
 - a. Mathematics (M,m)
 - b. Actuarial Science (M,m)
 - c. Applied Mathematics/statistics (M)
 - d. Mathematics Teaching (M,m)
- B. How will your department change in the next 5 years?
 - 1. Research major to become well established
 - 2. Use of computers will expand (elementary statistics)
 - 3. More on line courses. More emporium style classes. (homework is computer and self-passed)
 - 4. Math Lab for tutoring and testing.
 - 5. Math tutoring lab is now in Centennial but closes at 4:30pm. Used to be in Hibbard. Desire for it to return to Hibbard, but students don't seem to want to be in Hibbard in the evenings.
 - 6. Math majors currently study in Hibbard.
- C. What's working well:
 - 1. HHH507 Seminar room study very active, open late, invites students to stay late. Doors are open. Sometimes used for faculty meetings. Chalk and

marker boards. Writing boards on 3 walls. Has a few computers and a large monitor.

- 2. Active Learning pod classrooms Active learning classrooms with monitors (with white board) 6 or 7 groups of 6
- 3. Dry lab adding in large monitors soon, outside of this study.
- 4. More space to write. White boards all walls floor to ceiling.
- 5. Prefer tables to tablet arm chairs.
- 6. Desire space for collaboration
- 7. Teaching in the same building is handy.
- Have a priority scheduling classroom in Centennial that seats sixty (60) Room 2931.
- D. Spaces/Needs:

In addition to maintaining all current departmental spaces, the following items were noted:

- 1. More space to write desired. Floor to ceiling marker board desired;
- 2. Some math faculty prefer chalkboards. UWEC campus standard is marker boards;
- 3. Classrooms... prefer tables over desks. Desire smaller class sizes than large lecture halls; Reconfigurable tables for testing environments desired;
- 4. One math office has (3) 3D printers;
- 5. Data Science online program is expected to grow;
- 6. Department is using the Blugold Supercomputing Cluster
- 7. Desire for an additional multi-purpose conference room for research and testing;
- 8. Course about quilting and symmetry- one faculty office is basically a sewing room. One 3rd floor classroom has storage and extra power for a course of quilting; Special speakers
- 9. Desired in one classroom? Math in music. Acoustical treatment then required perhaps.
- E. Collaborations
 - 1. Computer science (would like to do more)
 - 2. Physics (would like to do more)
 - 3. Biology (would like to do more)
 - 4. Economics (would like to do more)
 - 5. Data Science online graduate program online program is becoming stronger CS collaboration will increase.
 - 6. Desire to see other people's research. Currently have posters displayed in corridors: 42 research students with 7 advisors.
 - 7. Collaborate with Computer Science and Physics. Some with biology and economics. Use of 3D printing;

1.07 Biology (and greenhouse)

- A. General Comments
 - 1. Department offers the following majors/minors:
 - a. Biology Liberal Arts (M,m)
 - b. Biology Microbiology (M)
 - c. Biology Ecology and Environmental Biology (M)
 - d. Biology Teaching (M,m)
 - e. Biochemistry/Molecular Biology (M)
 - f. Neuroscience major is listed under Psychology

Have a bus for field trips, holds (14) students, so labs are sized to accommodate (14) students.

- B. Departmental Changes in the next five years:
 - 1. Into the future, desire to maintain the foundations of the diverse department of biology while providing flexibility for future unknown needs;
 - 2. Desire flexibility across the diversity of biology. Department is constantly assessing the program.
 - 3. New minor in neuroscience (listed under Psychology). So department collaborate with psychology;
 - 4. Desire for technology-rich teaching and research environments. Focus on data analysis more than data gathering (though not abandoning data gathering);
 - 5. Department is down 5-6 faculty over the past few years, desire to add more faculty back.
 - 6. Health Sciences fields are increasing. Research and teaching to be amenable to technology.
 - 7. Data Analysis fields growing (more than just data gathering). Collaborative spaces will be needed with large monitors and laptops.
- C. Spaces/Needs:

2.

In addition to maintaining all current departmental spaces, the following items were noted:

- 1. Teaching labs. See plans for existing locations.
 - a. Field biology and ecology could be combined
 - b. (2) Cell Molec genetics labs
 - c. (2) Micro/immunology labs
 - d. (2) A&P labs, potential for cadaver lab
 - e. (1) Neuroscience/ animal physiology lab
 - f. One of the intro labs needs to have the ability to teaching cell/micro
- 2. Experiments set up in labs and students are expected to come back on their own time to complete the project.

3.	Greenhouse BWBR to send more specific questions. Over 500 public	BWBR
	visitors per year. Growth in one part of the greenhouse is stunted because of	
	poor performance of systems in other parts of the building.	
4.	Desire for dedicated Neuroscience lab.	BWBR
5.	Desire for cadaver lab and program.	
6.	Desire two (2) cell/molec genetics. Two (2) field/ecology organismal. Two (2) A&P labs;	
7.	Vivarium/animal spaces BWBR to send more specific questions.	
8.	Plant growth chambers BWBR to revisit next time. Some research cannot	BWBR
	use greenhouses- must be done in walk-in growth chambers. Have	
	environmental rooms on 5 th level.	
9.	Field storage areas BWBR to send more specific questions.	BWBR
10.	Desire for conference/ break out spaces by research labs with marker boards,	
11	Museum	
11.	Museum BWBR to gather more information about now this is currently used	BMRK
10	and now it is desired to be used in the future.	
12.	Collections mammals, fish, birds, and herbs BWBR to gather more	
	information about how this is currently used and how it is desired to be used	
	in the future.	
13.	Prep spaces are inadequate.	
14.	Small conference room desired adjacent to research labs.	

15. Welcoming area desired for public to view collections.

NO. ISSUE

1.08 Inter departmental Groups

A. Watershed Institute

- 1. Interdisciplinary Academic Unit offering:
 - a. Environmental Public Health (Major)
 - b. FUTURE Public Heath (Major)
 - c. Environment, Society + Culture (Minor)
 - d. Environmental Science (Minor)
 - e. Public Health (Minor)
- 2. Specific spaces:
 - a. Office of Interdisciplinary Programs;
 - b. Office space in Schofield 30
 - c. Lab space in Hibbard 3rd floor
 - d. Human Sciences & Services (HSS) 2nd floor two (2) wet lab research spaces- Room 218
 - e. Five (5) faculty
- 3. Courses listed under ENPH and ENV;
- 4. Desire for major Public Health (organized more as liberal arts degree, students likely to go to grad school). ENPH major is for pre-med students. New public health major would be an expansion of Environmental Public Health. Potentially new faculty and potentially more teaching lab and research lab space. Likely relates to Mayo relationship;
- 5. Desire for integrating new technologies (simulations);
- 6. Experimenting with social sciences labs, includes sending students out on campus to make behavior observations then return to lab to study. Possible desire to collaborate spaces with Psychology observation rooms.
- 7. Currently use and desire more active learning classrooms.
- 8. Modular, flexibility desired. Classrooms desired to hold 100 students but then subdivided or nearby break out space for small group work.
- 9. Faculty research desired; relates to faculty attraction/recruitment. Seems to be a wave of need for new science buildings across the UW System, some faculty may desire a university that already has a new building. Recently, a faculty search had to choose applicant number eight (8) on their list.
- 10. Collaborates with many departments: Biology, Chemistry, Physics, facilities. Also the City of Eau Claire.
- 11. Desire for building to also educate the students sustainability dashboards showing energy use, for example.
- 12. Simulation/decision modeling lab desired. Relates to analyzing and sharing data. Bioinformatics.
- 13. Hoteling space for Mayo collaboration desired.

B. Institute for Health Sciences

- Interdisciplinary Administrative unit under Academic Affairs (not an academic department). Dr Kantor is the only staff member and serves as a champion for interdisciplinary work.
- 2. Ideas for potential academic collaborations, minors, etc. come from analyzing existing/growing programs, regional/national needs and reviewing UWEC current offerings and strengths. The goal is to maximize existing programs and resources, repackage, create collaboration opportunities. They might need to create new courses though not a specific goal; Reviews ideas with department chairs and others (he most often goes to their space rather than invite them to his office).
- 3. Future Possible Program that might have space implications:

- a. Looking at growing Public Health minor to a major that would be academically managed out of Watershed Institute.
- b. Possible future program in Medical Humanities sometimes called Health Humanities. Use literature, film, and other humanities to education future physicians about being a human doctor or relating to human patients. Desire to help understand patient experience not just A&P and lab results. Likely to be a minor to be housed in an academic unit.
- c. Interdisciplinary simulation labs for all health professions not just nursing.

C. Health Career Services

- 1. A non-academic unit that assists students interested in health career. No majors/minors in this group. "Career intentions" or career paths... students have a major in other departments. Biology department runs Pre-Professional health minor.
- 2. Specific spaces:
 - a. Office space in Schofield;
 - b. No specific lab spaces (are in other departments);
- 3. Desire for spaces that promote collaborative learning, distance learning (even if only across the river to HSS.)
- 4. Space for the Mayo Collaborative.
- 5. New neuroscience program is hoped for in the future. Relates to biology and psychology.
- 6. Desire for cadaver lab space in the future. Needed for Physicians Assistant program, if that program is desired long term. Can be a powerful marketing tool- is a question prospective students/parents have.

D. Mayo Institute/ Connection (name to be confirmed):

- 1. It is unknown exactly what spaces this collaboration will require, but some preliminary thoughts include:
 - a. Non-wet lab interaction spaces desired- collaboration, hoteling, data analysis.
 - b. Desire long term for future wet lab research space.
 - c. Branded identity signage desired for prospective student tours.
 - d. Goal to be #1 pre-med program in the upper Midwest.

1.09 Materials Science & Engineering

- A. General Comments:
 - 1. Founded in 2004, the Materials Science + Engineering Center houses the instrumentation, was before the program. Instrumentation used by several departments and funded by NSF grants.
 - 2. Department founded in 2007, it's an Academic Unit, not department technically. Funded in part by the state. In 2009, Material Science major started, in 2016 an Material Science Engineering major started. Most faculty were original hired in other departments. Mat Sci Engineering major has more credits than MatSci major.
 - 3. At the time, it was a challenge to carve out space in an already full Phillips Science Hall for this new program. Most of the space they use was once lecture and classroom space. The program is growing and it continues to be a challenge to find space to meet the needs.
 - 4. There are five (5) remaining general assignment teaching classrooms in Phillips: 117,119, 007, 319, and 413;
 - 5. Enrollment? UWEC to confirm specifics. MatSci and MatSci Engineering together enrollment is sixty (60) students. Campus desires growth. From

2009-2016 looked like would plateau at fifty (50), with engineering major announced in 2016 there is expected growth;

- 6. Course prefixes MSCI, MSE;
- 7. Faculty feel so strongly about the student owned space that they gave up their conference rooms.
- 8. The Intro to Engineering course serves several pre-engineering majors;

 Currently the instrumentation in the Materials Science + Engineering Center is used by both research and teaching. There is a desire to decouple this. Would fix safety and cleanliness concerns;

- a. Have two (2) NSF funded confocal microscopes in a room that barely fit;
- b. Instrumentation has very specific requirements for system connections: vibration, air flow, humidity, water purity, exhaust, cooling, magnetic fields, compressed air, etc.;
- c. Have five (5) storage cabinets in the hallways (doors) currently.

B. Spaces/Needs:

In addition to maintaining all current departmental spaces, the following items were noted:

- 1. Teaching labs for Materials Science: 171, 106 and 479;
- 2. Rooms 167 and 174 imaging suite Center for Materials Science
- Room 106 Converted classroom. Middle has injection molder, classroom space and other instrumentation. Faculty research has to happen in this room also.
- 4. Room 188 computational research lab
- 5. Departmental space is spread throughout the building —one lab is on 4th floor.
- Instrumentation for the Center is also used by groups outside of the University. This will be important to making the case for better conditions for this instrumentation. UWS requested metrics for use by outside collaborators.
- 7. The Center recently had to turn down donation of an extrusion press because did not have a place to put it.
- 8. Engineering major does not yet have capstone courses will start fall 2018 but do not have spaces right now. Engineering major has been approved but every course (final year) has not started. Need to plan for current students in the major.
- 9. Current set up in Lab 171 not optimal. Trying to use the lab for too many different types of work-computer lab, fume hoods, etc.;
- 10. Computer Lab with specific software.
- 11. Desire to separate 3D printers and dirty instrumentation, currently in 106;
- 12. Faculty student research regarding NSF funding- space is barely adequate for the work.
- 13. Electrical power in Phillips Hall glitches and causes issues with instrumentation. Then causes time delays;
- 14. Emergency power and other utilities are at maximum capacity;
- C. Relation to industry . . .
 - Department offers expertise (outreach), also graduates bring their companies back. Two (2) staff members can "triage industrial issues". Because of this, faculty doesn't need to devote time, and then projects can be assigned to student and/or faculty research. Word of mouth also helps. This year twenty (20) companies on over eighty-three (83) projects;

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INU.	IJJJUE	

- Sometimes companies hand off project, sometimes companies want to come in and work. UWEC can train them on the instrumentation. Student connections (networking), rent instrumentation (companies pay);
- Why would a company come to UWEC not Madison, etc? Instrumentation at UWEC isn't used by students/grad students as much, so instrumentation is more available. Proximity is a factor too. Twin Cities companies utilize the Center.
- Intellectual Property . . . company can come in, do their thing, and leave. UWEC does not require Non-Disclosure Agreement (NDA) or ownership of outside company results. UWEC and/or companies do sometimes use NDA's when required/desired;
- 5. UWEC is seeing the real world issues companies are facing (compared to UW Madison is producing PhD's.)
- 6. Desire for space for collaborative companies to have lockable cabinets.

1.10 Computer Sciences

- A. General Comments:
 - 1. In 2005, the department had forty-three (43) incoming freshman. In 2016, there were forty-five (45) in 2017 enrollment was in seventies (74) to eighties.
 - 2. National Academy of Sciences report from fall 2017 indicates Computer Sciences programs are growing.
 - 3. First two years are lab based classes with faculty. Labs are important as they allow smaller groups thus faculty-student interaction.
 - 4. Intro classes have large lecture component 120+ students.
 - 5. Desire for active learning classrooms.
 - 6. Department has program for international Chinese students –one-two-one. Spend two years at UWEC. Spring 2019, 36-40 students expected to the finance department and Computer Science Department. The Chancellor is involved in this project. Need more faculty and space for this project.
 - 7. Department needs more faculty to be able to offer more courses, even with current facilities. Department is turning away students because they don't have faculty.
 - Department goes out to local schools. Robotics team at middle school, setting up one at a high school. Summer camp for robotics. Public library outreach (service and recruitment). The department doesn't host much, but do have 5th graders on campus once a year.
- B. Spaces/Needs:

In addition to maintaining all current departmental spaces, the following items were noted:

- 1. Available spaces severely limits scheduling ability of courses.
- 2. Department does not "own" their own active learning lab, however they desire to. Some departments have priority access to general assignment active learning classrooms.
- 3. Desire for a teaching and research Mac Lab (currently 122 is not big enough to teach in). Courses capped at twenty (20) students.
- 4. Small break out room for peer review is desired ("interrogation room").
- 5. Desire for marker board space adjacent to screen (not behind the screen only).
- 6. Phillips 276 has a projection screen in front of doors- this is not safe and not desirable.
- 7. Student organization holds their meetings in a lab because it uses the equipment in that lab.
- 8. Desire for teaching computer lab students to all face the front of the room.

- 9. Room 139 former office is now used for departmental meetings or meeting with families of prospective students
- 10. Desire for a research lab for security labs, networking labs, digital logic
- C. Collaboration:
 - 1. Collaborate with Materials Science 3D printers.
 - 2. Would collaborate with a department that has a research lab with things like a fume hood, soldering station for minimal use. Would need to review hardware vs software needs, but could be multi-purpose Computer Science research lab;
 - 3. Room 178 is shared by Geology, Computer Science, and Materials Science. Each agreed to be able to teach one course in there per semester. Has tables and chairs, teaching station, fits (28) students. High static electricity environment.
 - Department teaches intro courses for physics, math, and geography. CS Department intro to programming course is an elective for other programs like Multimedia Minor, Information Systems. CS hosts computer ethics course, which is required by other programs.

1.11 Psychology

- A. General Comments:
 - 1. Department is mostly located in Hibbard on 2nd level.
 - Department also has space in HSS building graduate school, 3 faculty, 30 grad students –on the First level; HSS riverside. Second floor is Campus Autism Clinic- 1 faculty member, 20 undergrads run an external community based clinic for children on the autism spectrum. Psychology spaces in HSS does not need to move to a science project.
 - 3. Department has 20 faculty. 600 majors, 250 minors, about 30 graduates/year. Second largest behind biology in Arts and Sciences.
 - 4. Lab spaces in Hibbard are inadequate. When thinking of a Sciences project for UWEC, there are some in the Psychology Department that require wet lab teaching and research. Others in the department do not, and could remain in Hibbard.
 - Comprehensive major in Neuroscience expected to be passed by Regents February 2018 and launch fall 2018. Expected to bring enrollment of 80-150 students. This will require lab spaces. When added, neuroscience programs around the country see huge increases in students.
- B. Spaces/Needs:

In addition to maintaining all current departmental spaces, the following items were noted:

- 1. Vivarium
 - i. Three (3) labs that use 80-120 rodents (rats), desire for more and more species (mice). Behavioral psychology, neuroscience, physiological (perhaps now called neurobiological). There is no capacity to provide more animal facilities.
 - ii. Desire to be USDA and AAALAC accredited. All items may not meet accreditation standards currently.
 - iii. Vivarium needs priority attention if UWEC desires to be able to do animal research.
- 2. All research is student **and** faculty research. And falls primarily into these categories.
 - i. Neuro EEG
 - ii. Behavioral
 - iii. Wet Lab
 - iv. Neuro-animal physiology (see Biology)

NO. ISSUE

ACTION BY

C. Collaborations:

- Not critical for Psychology to be in close proximity to other departments. Would be nice to be in the same building as Chemistry and Biology for equipment sharing.
- 2. Collaborate regularly with Biology, Chemistry, and statistics (math).

1.12 Chemistry

- A. General Comments:
 - 1. Widely recognized for collaborative research. Students come for hands on research opportunities. Over 100 faculty publications with student coauthors.
 - 2. Undergraduate research is key to the department's identity.
 - 3. Since 1989 have offered biochemistry/ biomolecular major. Interdisciplinary.
 - Chemistry in Business major. Tend to end up in technical support or sales. Function as translators. High job placement. Rare major nationally. Employers very interested.
 - 5. NSF keeps database of where PhD's did undergrad, UWEC is #13;
 - 6. Over 25% of incoming freshman class takes general chemistry. Need spaces for hanging coats for safety.

B. Spaces/Needs:

In addition to maintaining all current departmental spaces, the following items were noted:

- 1. Some teaching labs that should be adjacent are not currently. For example, Analytical (Quant) should be closer to Physical Chemistry and Advanced Synthesis course should be closer to Organic lab.
- 2. Desire more team projects (4 students) in teaching courses. Desire for break out spaces adjacent to the lab. Perhaps similar to "co-lab" like at UW Madison design for their new Chemistry building.
- 3. Desire to have a countertop and sink in some classrooms for demonstrations.
- 4. Upper and lower level courses are sharing spaces now, which is not working.
- 5. Need more stock room support.
- 6. Maxed out building capacity for fume hoods currently (can't add one). Some days hoods don't work to contain adequate face velocity containment.
- 7. Teaching Labs Desired:
 - a. (3) Gen Chem
 - b. (1) Organic
 - c. (1) "Extra" lab for Organic, Synthesis, or Gen Chem
 - d. (1) Quant/P Chem
 - e. (1) Biochem
- C. Collaboration:
 - 1. Collaborate most closely with Biology and Materials Science. Geography, geology, computer science, physics. Both faculty and students.

1.13 Core Group Summary

- A. Observations & Assumptions:
 - 1. Undergrad research integral to all programs, will require more data.
 - 2. Lab capacity 24 or less is desired.
 - 3. Departmental student-owned "3rd spaces" are desired by all departments.
 - 4. Several collaboration hubs currently exist in Phillips (electron microscope, materials science, geography/biology, field research/garage, etc.). There is a desire to keep these and build upon them.
 - 5. Quantity of classrooms desired for a Science project will need to reviewed.
 - 6. Data needed. See attached Core Group summary presentation. BWBR reviewed what additional information is needed from UWEC.

NO.	ISSUE		ACTION BY
		7. Phillips existing structural floor loading will be studied.	
	В.	Project Vision:	
		 BWBR created a draft of Vision statements based on the activity from the Plenary session which asked the question, "How will we know this project was successful?" See attached. Mike Rindo will provide further editing. 	Mike Rindo
	C.	Scope	
		 BWBR inquired if the Watershed and Psych spaces in the Human Services and Sciences (HSS) building should be included in this study. UWEC to confirm. UW-System noted something else would need to backfill HSS spaces for a neutral net plus/gain of building area (square feet). UWEC noted perhaps other Psychology spaces or nursing spaces could back fill HSS. 	
		 DW-Barron County is experiencing a transitional, like several other 2-year DW schools. UW-Barron County will have a relationship with UW-EC. BWBR inquired if that will have any impact on this project. No impact anticipated by UWEC. 	
	D.	Homework	
		 BWBR provided a description of more information that will be needed from faculty. BWRB and UW-System will send a request (form to fill out) as "homework" for the faculty. 	BWBR
	E.	Next Steps:	
		1. Department visits/tours - planned for Friday, 2/9/18	
		2. Meet with Nursing, Watershed (same date as above)	
		3. BWBR to create options	
		4. Workshop 2 preview	
		5. Workshop 2—scheduled for March 28-29	
BL/kk			
For professiona	ıl licensu	re, visit bwbr.com/licenses-registrations	
Attachments:	_201	8-01-18 UWEC Sciences- WS1 plenary presentation.pdf	
	_201	8-01-19 UWEC Sciences- WS1 core group summary.pdf	
	_201	8-01-19 UWEC Sciences WS1 dept plans_flat distributed.pdf	
	2018	-01-20 UWEC Existing rooms- Biology.pdf	
	2018	-01-20 UWEC Existing rooms- Chemistry.pdf	
	2018	-01-20 UWEC Existing rooms- Computer Sci.pdf	
	2018	-01-20 UWEC Existing rooms- Geography Anthro.pdf	
	2018	-01-20 UWEC Existing rooms- Geology.pdf	
	2018	-01-20 UWEC Existing rooms- Mathematics.pdf	
	2018	-01-20 UWEC Existing rooms- Nursing.pdf	

2018-01-20 UWEC Existing rooms- Nursing2.pdf

2018-01-20 UWEC Existing rooms- Physics Astron.pdf

2018-01-20 UWEC Existing rooms- Psychology.pdf

Biology comments recd from UWEC faculty_2018-01-18.pdf

Matls Science comments recd from UWEC faculty_2018-01-18.pdf

Physics site visit report recd from UWEC faculty_2018-01-18.pdf

BWBR

Meeting Minutes

DATE February 15, 2018

SUBJECT / PROJECT UW-Eau Claire Science Feasibility Study

BWBR COMMISSION NO. 3.2017246.00

TO Mike Rindo, UWEC - Assistant Chancellor Mike Carney, UWEC - Associate Vice Chancellor Paula Neff, UWEC - Biology Chris Hessel, UWEC Assoc Director Facilities Doug Matthews, UWEC – Psychology Erik Hendrickson, UWEC – Physics Cathy O'Hara Weiss, UW System Jake Ehmke, State of Wisconsin Renee Strehlow, UWEC Campus Planner Mark Zobitz, Mayo Health System Brandon Yates, UWEC student

Stephanie McDaniel, BWBR Brian Lapham, BWBR

FROM Brian Lapham 651.290.1878 blapham@bwbr.com

SUBJECT 2018-02-09 Meeting Minutes: Workshop 1 - Nursing

The following notes represent BWBR's understanding of this meeting. If you have any questions, comments or additions, please notify the author immediately in writing.

NO.	ISSUE	ACTION BY
	New Business	

- 1.01 Attendees included:
 - A. Renee Strehlau, Chris Hessel, Linda Young, Debra Jansen, Stephanie McDaniel, and Brian Lapham
- 1.02 The purpose of the meeting was to meet with Nursing as part of Workshop 1.
- 1.03 BWBR introduced the Sciences Feasibility Study project, describing goals and objectives. This initial meeting with nursing was intended to provide BWBR with information about the department's desires and needs for the future.

1.04 Linda Young, the dean of the college of nursing and health sciences, and Debra Jansen, Associate Dean, described the state of the college currently and hopes for the future:

- A. Inter- professional is on the increase.
- B. Director and associate director of the simulation area have degrees in simulation. Use them as a resource in the future.
- C. Undergraduate use of the simulation and practice labs is very heavy. That will increase, but also the graduate programs will use those increasingly.
- D. Graduate students will be more likely to use clinic environment.
- E. UW Oshkosh has a nice example of simulation and breakout spaces.
- F. A collective vision for the College was recently studied. Currently can enroll up to 56 nursing students. Usually admit 40 nursing students each semester, but now have increased that to 49 & 56. Now after 2 years of that size, space isn't adequate for the students. Would like to increase number of students admitted. Would need more faculty, more classrooms/ larger classrooms to maintain 56 (or more).

NO. ISSUE

- G. A 56 student cohort would be the maximum number of students the college plans to pursue. This is partially restricted due to clinical site and a shortage of nursing faculty. There are plenty of students who would qualify to be admitted.
- H. Bachelors of Science in Nursing (BSN) and graduate students will also be added.
- I. Simulation time will increase in addition to the number of students that are using them.
- J. Five years out, we want to be a partner to the community for simulation education. Would also like to have a clinic for outreach to the community. Parking is a major drawback for that.
- K. Offsite clinical partners are also pressed for space and thus are less able to accommodate students.
- L. Standardized patients and "models" are currently used with undergraduates and grad students. Ideally would have space for locker rooms for those patients.
- M. Our care is transitioning to the community. Considering creating a simulation site in an old house nearby.
- N. Would like some flexible space in the simulation space, as the industry is changing and future needs are unknown.
- 1.05 The college has a distance education site in Marshfield, WI. Therefore, they need to share content digitally. They have a separate simulation suite at that site. Marshfield clinic is a partner for Inter-professional education. Marshfield may be adding/ enhancing simulation space at some point in the future, though it is not included in this study.
- 1.06 Controlled access is concern. Would like to see a separate area that is just for practice (ideally 24/7). Because the labs themselves have setup and the labs and practice area are just simply used a lot.
- 1.07 The college/departments collaborate with:
 - A. Social Work
 - B. Human Development Clinic
 - C. Kinesiology
 - D. Occasionally Psychology (would like to expand)
 - E. Heath care partnerships, Marshfield Clinic (Marshfield and Eau Claire), Mayo
- 1.08 The college discussed space needs:
 - A. There is a lack of storage (for mannequins and all others).
 - B. Would like a standardized testing computer laboratory. It's a challenging with individual laptops.
 - C. Desire to have a midsize classroom that connects to a skills lab.
 - D. Student lounge is not big enough.
 - E. There is no research space currently. Dry lab for collaboration and interview space.
- 1.09 Next steps:
 - A. BWBR to review nursing desires and needs and prepare a Space Needs Analysis to understand possible renovation/expansion concepts.
 - B. Workshop 2 has been scheduled for March 28-29, 2018.

BL/jn

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Attachments: 2018-02-09 Existing Nursing.pdf 2018-02-09 UWEC Sciences- WS1 nursing_distributed.pdf



Meeting Minutes

DATE February 21, 2018

SUBJECT / PROJECT UW-Eau Claire Science Feasibility Study

BWBR COMMISSION NO. 3.2017246.00

TO Mike Rindo, UWEC - Assistant Chancellor Mike Carney, UWEC – Associate Vice Chancellor Chris Hessel, UWEC Assoc Director Facilities Cathy O'Hara Weiss, UW System Jake Ehmke, State of Wisconsin Renee Strehlau, UWEC Campus Planner Mark Zobitz, Mayo Health System Stephanie McDaniel, BWBR Brian Lapham, BWBR

FROM Stephanie McDaniel 651.290.1872 smcdaniel@bwbr.com

SUBJECT 2018-02-21 Meeting Minutes: UWEC Mayo Clinic Collaboration

The following notes represent BWBR's understanding of this phone conference. If you have any questions, comments or additions, please notify the author immediately in writing.

The purpose of the meeting was to introduce Mark Zobitz, Mayo Health System, to the project, and to learn a bit about the types of space that the Mayo Clinic would utilize on campus at UWEC.

NO.	ISSUE	ACTION BY
	New Business	
1.01	Mark noted a research director for Mayo Eau Claire will be announced soon. That person will	
	be able to provide thoughts on the potential space needs.	

- 1.02 Preliminarily three types of space identified:
 - A. Collaborative Training space to teach students how to run a lab.
 - 1. Team meeting rooms
 - 2. Lab classrooms
 - 3. Collaborative team space
 - 4. Prototyping space
 - B. Faculty Lab Space PIs have their own laboratory programs they are running. Independent or in collaboration with University faculty. Wet and dry bench laboratory will likely be needed.
 - C. Entrepreneurial / Incubator Space Space for companies to partner with Mayo and the University.
- 1.03 Potential collaboration could include: Biology, Chemistry, Mathematics (informatics), and possibly Nursing (nursing skills type lab).
- 1.04 The program will start small, but the goal is for the program to grow.
- 1.05 Mark offered to have UWEC tour the Mayo Rochester spaces.

SM/jn

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Meeting Minutes

DATE February 26, 2018

SUBJECT / PROJECT UW-Eau Claire Science Feasibility Study

BWBR COMMISSION NO. 3.2017246.00

TO Mike Rindo, UWEC - Assistant Chancellor Mike Carney, UWEC – Associate Vice Chancellor Chris Hessel, UWEC Assoc Director Facilities Cathy O'Hara Weiss, UW System Jake Ehmke, State of Wisconsin Renee Strehlau, UWEC Campus Planner Mark Zobitz, Mayo Health System

Stephanie McDaniel, BWBR Brian Lapham, BWBR

FROM Brian Lapham 651.290.1878 blapham@bwbr.com

SUBJECT 2018-02-22 Meeting Minutes: Core Team Meeting

The following notes represent BWBR's understanding of this meeting. If you have any questions, comments or additions, please notify the author immediately in writing.

NO.	ISSUE	ACTION BY
	New Business	
1.01	Purpose of the meeting was to update the Core Team on the project's status.	
1.02	BWBR was on campus to meet with departments in Phillips Hall and tour their spaces in Phillips.	
1.03	BWBR described analysis of existing systems and condition of Phillips Hall has begun. The recent Condition Assessment was helpful and does not contradict what BWBR is seeing.	
1.04	BWBR presented the beginning format of the Space Needs Assessment. While not a programming effort, this study will need to understand how much space is needed (square feet). BWBR described the approach (see attached presentation). UWEC and BWBR are still collecting "homework" data to understand space needs.	
1.05	BWBR presented initial concepts for how spaces could be renovated, locations for additions, and/or locations for new/phased buildings (see attached presentation).	
1.06	UWEC recommended involving Academic Affairs in the conversation, especially around conversations about which departments might move or be renovated. The group scheduled a time for March 9 th .	

BL/jn

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Attachments: 2018-02-21 UWEC Sciences- core team update_distributed.pdf



Meeting Minutes

DATE March 9, 2018

SUBJECT / PROJECT UW-Eau Claire Science Feasibility Study

BWBR COMMISSION NO. 3.2017246.00

TO Mike Rindo, UWEC - Assistant Chancellor Mike Carney, UWEC - Associate Vice Chancellor Chris Hessel, UWEC Assoc Director Facilities Cathy O'Hara Weiss, UW System Jake Ehmke, State of Wisconsin Pat Kleine, UWEC - Provost Renee Strehlau, UWEC Campus Planner Mark Zobitz, Mayo Health System

Stephanie McDaniel, BWBR Brian Lapham, BWBR

FROM Brian Lapham 651.290.1878 blapham@bwbr.com

SUBJECT 2018-03-09 Meeting Minutes: Core Team Meeting

The following notes represent BWBR's understanding of this meeting. If you have any questions, comments or additions, please notify the author immediately in writing.

NO.	ISSUE	ACTION BY
	New Business	

1.01 Purpose of the meeting was to review initial building renovation/addition/replacement schemes with UWEC Academic Affairs.

- 1.02 BWBR reminded the group of the Sciences Feasibility Study objectives, vision, and process.
 - A. Provost Pat Kleine commented on the Vision. One of the top goals is to recruit, retain, and graduate students. The vision previously seemed to highlight other priorities first. BWBR revised the Vision and the group agreed with the revision. See attached presentation.
- 1.03 BWBR described information needed from UWEC. UWEC described recent and planned meetings with faculty and will provide information to BWBR before Workshop 2 scheduled for March 28-29.
- 1.04 At a high level, BWBR described the first draft of an Existing Building Analysis for Phillips Hall. This will be included in the final Feasibility Study and includes descriptions of deficiencies and opportunities related to renovation of the building, specifically addressing structural, mechanical, electrical, and plumbing systems; the exterior envelope assembly; code/ADA accessibility concerns; and space planning/layout considerations. See attached presentation.
- 1.05 BWBR noted potential strengths and synergies to enhance regarding UWEC's current activity in the sciences. For example:
 - A. Student/faculty research
 - B. The depth of science programs (comprehensive) compared to other UW schools
 - C. Interdisciplinary centers
 - D. "Student owned" study spaces
 - E. The budding partnership with Mayo Clinic

NO. ISSUE ACTION BY 1.06 At a high level, BWBR described the Space Needs Assessment that will be included in the Feasibility Study. A. While this effort is not a full Programming exercise, the Feasibility Study will need to understand how many rooms and amount of square footage is required. BWBR described methods of considering existing and proposed square footages and Β. an approach toward justifying changes in area. For example, offices will be standardized at 120sf and teaching labs will be planned to meet contemporary standards of 50sf/student. C. BWBR described a first pass at addressing teaching labs. The Board of Regents now requires teaching labs to be utilized 32hrs/week. As shown in the attached presentation, only a handful of labs seem to meet this criteria currently. BWBR will continue to assess and review each lab with faculty at Workshop 2. D. BWBR described a first pass at addressing research labs. BWBR noted a typical research lab size of 350sf/principal investigator. UW-System noted 350sf may be accurate, though 400sf could be also. Both BWBR and UW-System noted a wide variety of research space needs based on grant funding, instrumentation needs, and the type of research. BWBR will continue to investigate. 1.07 BWBR presented three (3) initial concepts regarding potential renovation, addition, and/or replacement of Phillips Hall. See attached presentation. A. UWEC noted Mathematics and non-animal lab Psychology is likely to remain in Hibbard Hall. B. UWEC noted Computer Science has many opportunities for collaboration with bioinformatics, management information systems, mathematics, and information technology. Therefore, it seems valuable for Computer Science to be adjacent to other Sciences departments (not move to Hibbard, for example). C. UWEC noted the existing Psychology spaces in the Health Sciences & Services (HSS) building across the river work well, specifically noting the need for the parking lot. Therefore, it is not expected that square footage would be included in a renovation/replacement of Phillips.

- D. UWEC noted the existing Watershed lab in HSS should be relocated to the renovation/replacement of Phillips.
- E. UWEC noted the existing offices in Schofield Hall for Health Sciences Institute and Health Career Services should be relocated to the renovation/replacement of Phillips.
- F. UWEC noted the Chancellor's desire to double the nursing program. The nursing growth is to be included in the Sciences Feasibility Study. Perhaps the proposed new simulation labs could be in a building shared with other departments.
- G. BWBR to review/ recreate concepts for discussion at the next Core Group meeting.
- 1.08 Next steps
 - A. Monday, 3/19 11am-noon. Core Group meeting as scheduled.
 - 1. Departmental chairs to attend also.
 - 2. Tentative agenda:
 - a. Vision & Objectives
 - b. Existing Building Analysis
 - c. Space Needs Analysis
 - d. Design Concepts
 - e. Next Steps
 - B. Wed-Thurs 3/28-29 Workshop 2
 - 1. Wednesday 3/28
 - a. 8:00 Plenary
 - b. 9:00 Geography & Anthropology
 - c. 10:00 Physics & Astronomy
 - d. 11:00 Mathematics

- e. 11:30 lunch/ BWBR prep
- f. 1:00 Geology
- g. 2:00 Biology
- h. 3:30 Psychology
- 2. Thursday 3/29
 - a. 8:00 Materials Science
 - b. 9:30 Nursing
 - c. 10:30 Watershed
 - d. 11:00 Computer Science
 - e. 11:30 lunch/ BWBR prep for core group
 - f. 1:00 Chemistry
 - g. 2:30 Summary
- C. Core Group meeting(s). Being scheduled
- D. Mid-April: Draft deliverable to the State

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Attachments: 2018-03-09 UWEC Sci- core team& academic affairs_distributed

BWBR

Meeting Minutes

DATE March 30, 2018

SUBJECT / PROJECT UW-Eau Claire Science Feasibility Study

BWBR COMMISSION NO. 3.2017246.00

TO Mike Rindo, UWEC - Assistant Chancellor Mike Carney, UWEC – Associate Vice Chancellor Chris Hessel, UWEC Assoc Director Facilities Cathy O'Hara Weiss, UW System Jake Ehmke, State of Wisconsin Renee Strehlau, UWEC Campus Planner Mark Zobitz, Mayo Health System

Stephanie McDaniel, BWBR Brian Lapham, BWBR

FROM Brian Lapham 651.290.1878 blapham@bwbr.com

SUBJECT 2018-03-27 Meeting Minutes: Core Team Update & Workshop 2 Preview

The following notes represent BWBR's understanding of this meeting. If you have any questions, comments or additions, please notify the author immediately in writing.

NO.	ISSUE	ACTION BY
	New Business	

- 1.01 The purpose of the meeting was to update the Core Team on progress to date and preview the content for Workshop 2 including departments impacted, area (square feet) needs of departments, and concepts for renovation/additions and/or new construction.
- 1.02 BWBR led the WebEx online meeting and presented a high-level overview of the agenda for the Workshop 2 Plenary session (see attached presentation).
 - A. Objectives, Vision & Goals
 - B. Existing Building Analysis
 - C. Space Needs & Justification
 - D. Initial Concepts
 - E. Departmental Meetings Preview
 - F. Next Steps
- 1.03 UWEC noted Mayo has requested 10,000sf of space. More information is expected soon.
- 1.04 UWEC questioned the new construction cost/sf factor being used currently (\$525) as peer institution La Crosse's new science building may have been closer to \$438/sf. BWBR, UWEC, and DFDM to review which factors to use in this study. For consideration are budgeting factors vs after-a-bid actual factors, inflation/escalation, and market influences. BWBR has worked with respected cost estimating firm CPMI on the current \$525 factor.
- 1.05 UWEC described desired new programs and enrollment growth recently sent to BWBR. BWBR to consider in writing of the report, though at a subsequent meeting UW-System attempted to clarify the value of emerging programs in justifying a capital request. See notes from the Workshop 2 Core Group Summary meeting on 3/29/2018.
| NO. | ISSUE | ACTION BY |
|------|---|-----------|
| 1.06 | The purpose of the very early, initial costs noted in the attached presentation are meant only to give an idea of scale- both the area (sf) numbers and cost numbers will vary over the next few weeks as Concepts, departmental needs (room quantity/sf), and cost/sf numbers are refined. | |
| 1.07 | Meeting adjoined just after 1pm. The next Core Group meetings are scheduled for April 6 th and April 13 th . | |

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Attachments: 2018-03-27 UWEC Sci- Plenary draft.pdf

BWBR

Meeting Minutes

DATE April 18, 2018

SUBJECT / PROJECT UW-Eau Claire Science Feasibility Study

BWBR COMMISSION NO. 3.2017246.00

TO Mike Rindo, UWEC - Assistant Chancellor Mike Carney, UWEC - Associate Vice Chancellor Paula Neff, UWEC - Biology Chris Hessel, UWEC Assoc Director Facilities Doug Matthews, UWEC - Psychology Erik Hendrickson, UWEC - Physics Cathy O'Hara Weiss, UW System Jake Ehmke, State of Wisconsin Renee Strehlau, UWEC Campus Planner Mark Zobitz, Mayo Health System Brandon Yates, UWEC student

Stephanie McDaniel, BWBR Brian Lapham, BWBR

FROM Brian Lapham 651.290.1878 blapham@bwbr.com

SUBJECT 2018-03-28 & 29 Meeting Minutes: Workshop 2

Me bel ast	eting participants and sessions attended are listed ow. The core group members are noted with an erisk (*).	Plenary	Physics/Astronomy	Geography & Anthropology	Computer Sciences	Nursing	Geology	Psychology	Biology	Materials Science & Engineering	Facilities	Watershed/Public Health	Mathematics	Chemistry	Core Group Summary
	*Mike Rindo, UWEC - Assistant Chancellor														х
	*Mike Carney, UWEC – Associate Vice Chancellor	x													х
	*Paula Kleintjes-Neff, UWEC - Biology	x							х						х
	*Chris Hessel, UWEC Assoc Director Facilities	x									х				
	*Doug Matthews, UWEC – Psychology							x							х
	*Erik Hendrickson, UWEC – Physics	x													х
	*Cathy O'Hara Weiss, UW System														х
	*Jake Ehmke, State of Wisconsin	x	х	x	х	х	х	x	х	х	х			х	х
	*Renee Strehlau, UWEC Campus Planner	x	х	x	х	х	х	х	х	х	х	х	х	х	х
	*Mark Zobitz, Mayo Health System														
	*Brandon Yates, UWEC student														х
	Mel Kantor, UWEC – Institute for Health Sciences	x													
	Lyle Ford, UWEC – Physics	x	х												
	Turner Howard, UWEC – Physics		х												
	Paul Kaldjian, UWEC – Geography	x		x											
	Doug Faulkner, UWEC – Geography & Anthropology			x											
	Jack Tan, UWEC – Computer Science				х										

2018-03-28 & 29 Meeting Minutes: *Workshop 2* UW-Eau Claire Science Feasibility Study April 18, 2018

Page 2 of 7

	Plenary	Physics/Astronomy	Geography & Anthropology	Computer Sciences	Nursing	Geology	Psychology	Biology	Materials Science & Engineering	Facilities	Watershed/Public Health	Mathematics	Chemistry	Core Group Summary
Chris Johnson, UWEC – Computer Science														
Heather Amthauer, UWEC – Computer Science				х										
Michelle Cicha, UWEC – Computer Science				х										
Dan Stevenson, UWEC – Computer Science				х										
Linda Young, UWEC - Nursing	x				х									
Debra Jansen, UWEC - Nursing					х									
Kent Syverson, UWEC – Geology	x					х								
Brian Mahoney, UWEC – Geology						х								
Lori Snyder, UWEC – Geology														
Sarah Vitale, UWEC – Geology														
Robert Lodge, UWEC – Geology														
Phil Ihinger, UWEC – Geology														
Julie Anderson, UWEC – Biology, Health Career Services								х						
Jamie Lyman Gingerich, UWEC – Biology								х						
Derek Gingerich, UWEC - Biology								х						
Chrystal Del Valle, UWEC – Biology														
Evan Weiher, UWEC - Biology														
Tali Lee, UWEC – Biology														
Dan Herman, UWEC – Biology								х						
Christina Chan-Weiher, UWEC - Biology								х						
Mary Elger-Lonzarich, UWEC - Biology								х						
Troy Terhark, UWEC - Facilities										х				x
Karen Mumford, UWEC – Watershed Institute	x										х			
Crispin Pierce, UWEC – Watershed Institute											х			
Alex Smith, UWEC – Mathematics	x											х		
Abra Brisbin, UWEC – Mathematics														
Aba Mbirika, UWEC – Mathematics														
Marc McEllistrem, UWEC – Materials Science	х								х					
Doug Dunham, UWEC – Materials Sci & Eng									х					
Liz Glogowski, UWEC – Materials Sci & Eng									х					
Ying Ma, UWEC – Materials Sci & Eng									х					
Warren Gallagher, UWEC – Chemistry													х	
Jenny Dahl, UWEC – Chemistry													х	
Cheryl Muller, UWEC - Chemistry														
Scott Bailey-Hartsel, UWEC – Chemistry														

2018-03-28 & 29 Meeting Minutes: *Workshop 2* UW-Eau Claire Science Feasibility Study April 18, 2018 Page 3 of 7

	Plenary	Physics/Astronomy	Geography & Anthropology	Computer Sciences	Nursing	Geology	Psychology	Biology	Materials Science & Engineering	Facilities	Watershed/Public Health	Mathematics	Chemistry	Core Group Summary
David Lewis, UWEC – Chemistry														
Bart Dahl, UWEC – Chemistry														
Kurt Wiegel, UWEC – Chemistry														
Jim Phillips, UWEC - Chemistry													х	
Stephanie McDaniel, BWBR	x	х	х	х	х	х	х	х	х	х	х	х	х	х
Brian Lapham, BWBR	x	х	x	х	х	х	х	х	х	х	х	х	х	х

The following notes represent BWBR's understanding of this meeting. If you have any questions, comments or additions, please notify the author immediately in writing.

NO.	ISSUE		ACTION BY
	New Bu	siness	
	WEDNE	SDAY, MARCH 28, 2018	
1.01	Plenary		
	А.	After introductions BWBR led a presentation (see attached).	
	В.	BWBR reminded the group of the study's goals and project vision.	
	С.	BWBR described the deficiencies with the existing Phillips Hall.	
	D.	BWBR gave an overview of the Space Needs Analysis. While not a full program or	
		predesign, space requests have been reviewed against certain metrics (teaching lab	
		WRP, offices at 120sf) in an effort to describe new space justification.	
	E.	BWBR described an activity that would occur in each departmental meeting. Printed	
		out "baseball cards" displayed a variety of space types. On smaller cards, each lab	
		course and each researcher were listed. In the departmental meetings, faculty would	
	_	place the course and researcher in the type of space each required.	
	F.	BWBR presented high-level initial concepts about where renovation or new building	
		could occur to fit the growth (square feet) identified in the Space Needs Analysis.	
		1. Renovate Phillips. Phillips has several deficiencies, plus more space is needed	
		(all the growth does not fit in the existing footprint of Phillips).	
		2. Renovate Phillips and add on. Instead of matching the existing 12 floor-to-	
		the efficiency a 16 there are still equare deficiencies of Dhilling but the addition	
		dees fit the growth area	
		2 Ruild a new science building. Consistent with the master plan in this concent	
		2. Build a new science building. Consistent with the master plan, in this concept Phillips would be completely demolished	
		4 The concepts also considered growth for Nursing and possible	
		reportion/addition(s) to Nursing Hall	
		5 The concepts included very early cost estimates based only on cost/sf	
		multipliers. Further refinement of these concepts and cost studies is	
		forthcomina.	

1.02 Physics & Astronomy (PHYS)

- A. After introductions BWBR provided an update of the current understanding of the department's needed spaces and led a hands-on activity to review which courses could be taught in which type of lab, which types of research (and researchers) need which type of space, and other support spaces.
 - 1. Teaching Spaces
 - Physics noted the biggest challenge of teaching lab utilization (from 3 to 2 rooms) is scheduling. For some courses, they need 2-3 hours of preparation time to calibrate equipment.
 - b. Physics provided sign-in sheets indicating student use of teaching labs outside of course time over the last two weeks.
 - c. After discussion and the "baseball card" activity, the group was comfortable with the spaces proposed (see attached).
 - 2. Research Spaces
 - a. Need an engineering capstone room where projects can be set up all semester.
 - b. Desire Data Visualization lab for four Principal Investigators.
 - 3. Other Support Spaces
 - a. Need observatory with deck for 30 people with telescopes.
 - b. Desire planetarium, willing to share.

1.03 Geography & Anthropology (GEOG)

- A. After introductions BWBR provided an update of the current understanding of the department's needed spaces and led a hands-on activity to review which courses could be taught in which type of lab, which types of research (and researchers) need which type of space, and other support spaces.
 - 1. Teaching Spaces
 - a. Geospatial computer labs are highly utilized.
 - b. See attached list of spaces; group agreed to this list.
 - c. Desire for a flexible chem lab for Food Anthropology course that a food inspector would approve. May not be able to be shared with microbiology.
 - d. Physical Geography lab is a "dirty" space meaning soil from outdoor UAV equipment.
 - 2. Research Spaces
 - a. Desire a "Remote Sensing" room focus for GPR, UAV, and computers to download.
 - b. Desire a "Physical Geography" lab with one fume hood and
 - sinks. Perhaps a stream table, though they do not have one now.
 - c. High end research computer lab with significant computing power for specific software.
 - 3. Other Support Spaces
 - a. Have space in the shed now, desire more.
 - b. Desire storage for maps and field equipment.
- 1.04 Computer Science (CS)
 - A. After introductions BWBR provided an update of the current understanding of the department's needed spaces and led a hands-on activity to review which courses could be taught in which type of lab, which types of research (and researchers) need which type of space, and other support spaces.
 - 1. Teaching Spaces

- a. Currently faculty are disheartened by a recent cut in staffing that has lessened their ability to offer courses.
- b. A new cyber security program is expected.
- c. See attached agreed upon list of spaces.
- 2. Research Spaces
 - a. Desire a "drop in" lab for computer science majors.
- 3. Other Support Spaces

1.05 Nursing (NURS)

- A. After introductions BWBR provided an update of the current understanding of the department's needed spaces and led a hands-on activity to review which courses could be taught in which type of lab, which types of research (and researchers) need which type of space, and other support spaces.
 - 1. Teaching Spaces
 - a. UWEC to review how much the program will grow from existing 40 students/cohort. Currently planning for an additional 16 (to 56).
 - b. Desire new simulation rooms, matching what would be known in healthcare as a Patient Room, Treatment Room, and/or Exam Room.
 - c. Desire skills/practice labs with several beds.
 - d. See attached list of spaces.
 - 2. Research Spaces
 - a. Desire for a cadaver program.
 - 3. Other Support Spaces
 - Desire four (4) classrooms of 60+ with distance education (DE) video conference capability.
 - 4. Other Comments

a.

a. The Core Team started initial conversations about the inclusion of nursing spaces in the proposed science building. Future discussion to occur around when and how a request for funding for nursing spaces fits into and/or with the sciences project.

1.06 Geology (GEOL)

- A. After introductions BWBR provided an update of the current understanding of the department's needed spaces and led a hands-on activity to review which courses could be taught in which type of lab, which types of research (and researchers) need which type of space, and other support spaces.
 - 1. Teaching, research, and support spaces
 - a. Were reviewed. See attached list of spaces agreed upon by the group.
 - 2. A better loading dock area was requested, including space for vehicle staging.

1.07 Psychology (PSYC)

- A. After introductions BWBR provided an update of the current understanding of the department's needed spaces and led a hands-on activity to review which courses could be taught in which type of lab, which types of research (and researchers) need which type of space, and other support spaces.
 - 1. See attached list of agreed upon spaces.
 - 2. Desire several holding rooms in the vivarium.
 - 3. Desire wet bench space adjacent to the vivarium.
 - 4. Desire adjacent flexible lab to the vivarium.
 - 5. Currently using ventilated cages.

ACTION BY

NO. ISSUE

1.08 Biology (BIOL)

A. After introductions BWBR provided an update of the current understanding of the department's needed spaces and led a hands-on activity to review which courses could be taught in which type of lab, which types of research (and researchers) need which type of space, and other support spaces.

- 1. See attached list of agreed upon spaces.
- 2. Discussion occurred around BWBR's course data. Biology lists some courses as "Discussions" that are taught in labs.
- 3. Courses with prep needs include General Biology 221, microbiology, and Biochem.
- 4. Space is needed for specimen collections.

THURSDAY, MARCH 29, 2018

1.09 Materials Science & Engineering (MSE)

- A. After introductions BWBR provided an update of the current understanding of the department's needed spaces and led a hands-on activity to review which courses could be taught in which type of lab, which types of research (and researchers) need which type of space, and other support spaces.
 - 1. See attached list of agreed upon spaces.
 - 2. Course 363 uses a clean room off site, for 20 students, to teach protocols. Further discussion will need to occur to consider if a clean room space should be included in the proposed science building.

1.10 Facilities

- A. After introductions BWBR provided an update of the current understanding of the project, especially related to potential reuse of Phillips Hall.
 - 1. Deficiencies in Phillips are well documented. UWEC to share with UW-System.
 - 2. The group reviewed additional deficiencies such as over 100 holes in the observatory roof, issues with balancing the HVAC system, and duct sizes.
 - 3. UWEC noted several items were "value engineered" out of the 2001 project and the mechanical systems have never worked properly.

1.11 Watershed/ Public Health (ENV/ ENPH)

- A. After introductions BWBR provided an update of the current understanding of the department's needed spaces and led a hands-on activity to review which courses could be taught in which type of lab, which types of research (and researchers) need which type of space, and other support spaces.
 - 1. See attached agreed upon list of spaces.

1.12 Mathematics (MATH)

- A. After introductions BWBR provided an update of the current understanding of the project and how Math relates.
 - 1. Faculty noted the math department's Dani Brake is involved in the new maker space being installed in the library. The new maker space proposed in the science building would be in addition to the one in the library.
 - 2. Faculty described the emerging Data Science program.
 - 3. The existing math tutoring lab in Centennial classroom building could relocate to the new science building.

1.13 Chemistry (CHEM)

A. After introductions BWBR provided an update of the current understanding of the department's needed spaces and led a hands-on activity to review which courses

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could be taught in which type of lab, which types of research (and researchers) need which type of space, and other support spaces.

- 1. Teaching Spaces
 - a. See attached list of agreed upon spaces.
 - Faculty noted UWEC starts 14 week semesters starting in spring 2018. May need to increase sections to meet accreditation requirements regarding lab time.
 - c. Just hired a new analytical chemist.
- 2. Research Spaces
 - a. Need wet, computational, and laser/optics. See list of spaces.
- 3. Other Support Spaces
 - a. NMR desired in its own room.
 - b. Desire room for cryogens with sturdy flooring.
- 4. Other Comments
 - a. New programs like ENPH could mean more sections would be needed of foundational courses like general chemistry.

1.14 Core Group Summary

ISSUE

NO.

- A. BWBR described the initial concepts from the plenary session.
 - 1. UWEC noted there should be no demolition of Nursing Hall.
 - 2. For simplicity, the group decided to segregate the talk of renovation/additions of Phillips vs Nursing Hall.
 - 3. UWEC noted Nursing Hall is "serviceable", though it needs service. Phillips is not serviceable, and thus is a greater need.
 - 4. UW-System noted the first draft of the Feasibility Study needs to include answers to the questions "Why do sciences need money?" and "Why doesn't Phillips hall work?"
 - 5. Psychology department to stay in Hibbard except for animal research related needs.
 - 6. Future discussions need to occur, but to get the price of the new building down to levels making it more receptive by the state, it is possible spaces of lower physical intensity could be located somewhere other than in the new building.
- B. BWBR summarized the departmental meetings and "baseball card" activity. See attached list of agreed upon spaces.
- C. UWEC noted the importance of student's spaces. For example, in physics, it directly related to more female physics graduates.
- D. UWEC noted faculty counts are down 179 FTE in the past three years.
- E. UWEC noted a desire to include a couple classrooms in the new science building. These could have a fixed demonstration station at the front for physics and chemistry demonstrations. Future discussions will need to occur about HVAC in these areas.
- F. Regarding future programs, some are expected, such as biomedical, cyber security, and data science. Others, such as electrical engineering, may take lots of conversation and political considerations related to other UW institutions.

BL/jn

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Attachments: 2018-03-29 WS2_combined baseball cards.pdf 2018-03-29 UWEC Sci- plenary-core group PPT_distributed.pdf

BWBR

Meeting Minutes

DATE April 18, 2018

SUBJECT / PROJECT UW-Eau Claire Science Feasibility Study

BWBR COMMISSION NO. 3.2017246.00

TO Jim Schmidt, UWEC - Chancellor Troy Terhark, UWEC Facilities Pat Klein, UWEC - Provost Erik Hendrickson, UWEC Physics Mike Rindo, UWEC - Assistant Chancellor Chris Hessel, UWEC Facilities Mike Carney, UWEC – Associate Vice Chancellor Paula Kleintjes Neff, UWEC Biology Renee Strehlau, UWEC Campus Planner Branden Yates, UWEC Student Mark Zobitz, Mayo Health System Jake Ehmke, State of Wisconsin Doug Matthews, UWEC Psychology Stephanie McDaniel, BWBR Cathy O'Hara Weiss, UW System Brian Lapham, BWBR

FROM Brian Lapham 651.290.1878 blapham@bwbr.com

SUBJECT 2018-04-13 Meeting Minutes: Core Team Meeting

The following notes represent BWBR's understanding of this meeting. If you have any questions, comments or additions, please notify the author immediately in writing.

NO.	ISSUE	ACTION BY
	New Business	

- 1.01 Purpose of the meeting was to update the core team on the progress of the Feasibility Study and specifically discuss how to address the total area need in several concepts. A second goal was to understand which concepts to include in the Study and specifically which single concept (and cost) to recommend for submission to the state.
- 1.02 BWBR presented an overview of space needs based on review with the department faculty. See attached presentation.
- 1.03 BWBR presented an overview of the concepts for discussion.
 - A. Concept A Renovate Phillips. More space is still needed in this option. Since there is no space on campus to renovate, a new building would need to be built.
 - B. Concept B Renovate Phillips, demolish a portion and rebuild. This concept contains all needed square footage, but is considerably compromised by the deficiencies of the existing Phillips Hall, for example the 12' floor-to-floor height.
 - C. Concept C Build a new building for all science departments in Phillips, plus relocate Psychology animal research spaces from Hibbard, plus include new space for nursing. This new building becomes a large enumeration request. The group agreed it is higher than UWEC wants to ask for.
 - 1. The new building for all departments/growth could be phased. This splits the large dollar amount ask in two, though means someone needs to remain in Phillips until Phase 2 funding is enumerated. This also means UWEC will need to determine which spaces/departments are in which Phase.
 - BWBR will develop an option that includes a phased approach for review.
 Phase 1 will likely be the intensive wet teaching and research labs, nursing

NO.	ISSUE	ACTION BY
	and Mayo Clinic partnership. Phase 2 will follow with less infrastructure intensive dry labs. The goal is for Phase 1 to be roughly 1/2 to 2/3 of the cost. Demolition of existing residence halls and Phillips will need to be included in the estimate for these efforts (this will likely not be included in the draft).	
1.04	UW System noted concepts A and B must be included in the Feasibility Study to describe why Phillips cannot be renovated nor host an addition.	
1.05	Construction cost/sf factors were reviewed. Previously the design team had been working with \$525/gsf, though after recent conversations with the state of Wisconsin, cost estimator CPMI, and considering costs of recent science projects at UW- Stevens Point and UW- La Crosse, the group was comfortable using a factor of \$450/gsf for the new construction elements of the estimate. More information and updated spreadsheets to follow.	
1.06	UWEC noted an analysis of existing campus classrooms will need to be conducted. There are classrooms in Phillips that are currently used (007 lecture hall, for example). If Phillips is demolished, this study will need to inform if classrooms are needed in the new science building. Faculty desire classrooms in the new science building for proximity and demonstrations during lectures.	UWEC
1.07	Next steps: BWBR to provide a draft of the Executive Summary of the Feasibility Study to UWEC, UW-System, and the State by mid-April. This draft was emailed by Stephanie McDaniel on 4/16/2018.	

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Attachments: 2018-04-13 UWEC Leadership Update_distributed.pdf

UNIVERSITY OF WISCONSIN-EAU CLAIRE Science Programs Feasibility Study



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