

UREC Facility Access Analytics Report

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Introduction

The UREC facilities play a significant role in the student experience. They offer opportunities for students to engage in activities that support their physical and mental wellness, particularly during a pivotal stage of development. As one of the university's largest employers, UREC also manages substantial financial and human resources. With many stakeholders invested in its success, it's essential that these resources are allocated responsibly and strategically.

A critical piece of that puzzle involves making data-informed decisions about staffing, facility availability, and student engagement. Facilities should be accessible when students need them most — but not overstaffed or open to excess, where resources could be wasted. This project analyzes facility access patterns to uncover trends in participation and usage, offering insights that will support operational efficiency and strategic planning for the UREC professional team.

Data Source

The analysis is based on a dataset of facility access records from the 2024–2025 academic year. The dataset includes:

- Participant type (e.g., Freshman, Sophomore, Graduate Student, Faculty)
- Facility name
- Time of day
- Count of facility access

These access counts were aggregated, meaning each row reflects the total number of accesses for a given group, facility, and time across the full year.

Methods

The dataset was cleaned and analyzed using Python, with additional visualizations and summaries created to highlight key patterns.

Results

The facility access analysis revealed several key patterns in usage trends, user demographics, and time-based participation across all UREC facilities during the academic year.

Peak Usage Time (Figure 1)

Across all UREC facilities, the most active time for facility access was 5:00 PM. At this hour, 76,874 individual entries were recorded, accounting for 12.42% of total annual visits. This consistent peak highlights the strong preference for late-afternoon facility use, likely to align with students' post-class availability and peak recreation hours.

Participation by Class Year (Figures 2 & 3)

Freshmen and sophomores emerged as the primary users of UREC facilities, dominating participation counts across every location. Freshmen were the most represented group overall, often by a significant margin. Juniors and seniors, while still active participants, showed a distinct drop in engagement outside of the Student Recreation Center (SRC). Notably, the SRC maintained the most balanced participation across all undergraduate classifications, suggesting it functions as the core recreational hub for students regardless of year.

Facility-Specific Trends (Figure 4)

Most facilities demonstrated a sharp peak in usage at 5:00 PM, reinforcing the system-wide rush hour pattern. However, a notable dip in participation was observed around 1:00 PM, possibly due to overlapping class schedules or lunch periods. The SRC stood out with secondary peaks around lunchtime and during late evening hours (8:00–11:00 PM), indicating a more consistent and extended usage pattern throughout the day. Conversely, other facilities, including Quinn, Mt. Mitchell, and the Climbing Wall, showed more limited time-band engagement, particularly during morning and midday hours, pointing to opportunities for program expansion and targeted outreach in those windows.

Demographics Beyond Undergraduates (Figure 5)

An interesting pattern emerged when analyzing non-undergraduate users. Faculty, staff, and family members represented exactly half of the participation at each facility, a surprising uniformity across locations. Although freshmen led in terms of percentage share, the raw participation numbers of upperclassmen were not drastically lower, suggesting that participation gaps may appear more exaggerated when viewed only through percentages. Seniors and juniors remained active at the SRC but were notably underrepresented at other facilities, indicating potential preferences or access barriers.

Graduate Student Participation (Figure 6)

Graduate students, while comprising approximately 9% of the university population, accounted for only 2% of total facility access. This significant underrepresentation suggests that current facility programming and marketing may not be resonating with graduate students, highlighting a clear opportunity for strategic engagement efforts to better serve this demographic.

Discussion

The facility access data provides valuable insights that can inform staffing decisions, programming strategies, and future outreach efforts. Most notably, the clear system-wide peak in traffic at 5 PM stands out as a critical time for operational focus. This hour alone accounted for

over 12% of all annual visits, underscoring its importance as the most opportune time to program high-impact activities, ensure robust staff coverage, and manage space constraints effectively.

Several factors may help explain this pronounced 5 PM peak. One possibility is campus parking regulations as many students are restricted from parking on campus until after 5 PM, making that time the earliest convenient window for commuters to access UREC facilities. This aligns with broader patterns observed among upperclassmen and graduate students, who often live off-campus and appear underrepresented in participation rates, especially outside the SRC.

The SRC's consistently high usage and balanced participation across all undergraduate class years suggest it holds unique appeal or accessibility compared to other facilities. Its extended engagement during lunch and evening hours further signals that targeted programming during underutilized times, such as 8 AM to 12 PM or 1 PM to 5 PM, could be more successful at the SRC than elsewhere. Furthermore, communications could send out messaging that emphasized there were times that have lower traffic, which may appeal to those that are uncomfortable around a lot of people in the gym or do not want to wait for equipment. Conversely, facilities like the Climbing Wall or Mt. Mitchell might benefit from unique event-based programming or partnerships with academic departments to attract students during non-peak hours.

The sharp drop in facility use among juniors, seniors, and graduate students also raises important questions. Are these groups less engaged due to off campus living, increased academic or work responsibilities, or a lack of targeted offerings? Or is the decline driven by a broader shift in interests and lifestyle as students' progress through their academic careers? While freshmen and sophomores dominate facility usage, it's worth considering whether this is due solely to their on-campus residence and proximity to facilities or whether it also reflects a campus culture that encourages early participation, only to taper off later.

Additionally, the disproportionately low participation from graduate students, despite making up 9% of the student body, signals a missed opportunity. More intentional outreach, tailored fitness or wellness programming, or flexible access options could help bridge this gap.

Finally, although the analysis shows that freshmen account for the highest percentage of participants, raw numbers indicate the margin may not be as wide as percentages suggest. This distinction is critical for interpreting the true distribution of users and ensuring data-driven decisions don't inadvertently overlook other active student groups.

Strategic Takeaways for Future Planning:

- Maximize staffing and programming at 5 PM, the system's most active time.
- Explore programming options at underused times (8 AM–12 PM, 1–5 PM, and 8–11 PM), particularly at the SRC.
- Investigate barriers to facility access for juniors, seniors, and graduate students, including parking, location, and time constraints.

- Consider ways to enhance the appeal of smaller facilities through specialty programs or class collaborations.
- Develop graduate student outreach and programming to reflect their unique schedules and needs.
- Use disaggregated counts and percentages in tandem to better understand engagement across groups.
- Market the times of day that are less crowded (1PM could be a good time). A complaint that is often heard is that the gym is too packed, and if students were made aware to lower traffic times, then maybe they would elect to go then, and more people could be drawn to the facilities.

This discussion highlights both immediate operational opportunities and longer-term strategic questions that could shape the evolution of campus recreation services.

Limitations

This analysis provides valuable insights but is constrained by several methodological and data quality limitations that affect interpretation and implementation.

Data Quality Issues

The most significant limitation involves the Faculty, Staff, and Family participation data, which shows identical proportions (exactly 50%) across all facilities. This mathematical impossibility suggests a systematic error in the data collection or aggregation process, particularly given that faculty members have access to dedicated fitness spaces. This anomaly undermines confidence in demographic breakdowns and requires immediate investigation of the tracking system before implementing demographic-based recommendations.

Temporal and Contextual Constraints

The dataset represents a single academic year (2024-2025), limiting our ability to identify multi-year trends, seasonal variations, or the impact of external factors such as campus events, weather patterns, or policy changes. Additionally, the aggregated nature of the data prevents analysis of individual usage patterns, repeat visits, or duration of facility use, which would provide deeper insights into user engagement and facility efficiency.

Methodological Limitations

The analysis lacks comparison with institutional benchmarks, peer institutions, or industry standards for recreational facility usage. Without baseline metrics for graduate student participation rates or typical peak usage patterns at similar universities, it's difficult to assess

whether observed patterns represent problems requiring intervention or normal operational characteristics.

Missing Contextual Data

Critical contextual information is absent, including facility capacity limits, concurrent programming schedules, campus housing distributions, class schedule overlaps, and external factors like parking restrictions or campus construction. The hypothesized connection between parking policies and 5 PM usage patterns, while plausible, cannot be validated with available data.

Scope Limitations

The analysis focuses exclusively on access counts without considering facility utilization quality, user satisfaction, or program effectiveness. Understanding why juniors, seniors, and graduate students show declining participation requires qualitative data collection that extends beyond the current quantitative approach.

Recommendations

Based on the analysis findings, the following recommendations are prioritized by implementation feasibility and potential impact on operational efficiency and student engagement.

Immediate Operational Actions (0-3 months)

Peak Hour Optimization

- Ensure high staffing levels at 5 PM across all facilities to handle the 12.42% daily volume spike
- Implement equipment rotation schedules during peak hours to minimize wait times

Data System Remediation

- Audit the Faculty, Staff, and Family tracking system to identify and correct the 50% proportion error
- Implement data validation protocols to prevent similar systematic errors in future collection
- Establish monthly data quality reports to ensure ongoing accuracy

Strategic Programming Initiatives (3-6 months)

Targeted Demographic Outreach

- Develop graduate student-specific programming including evening fitness classes, stress management workshops, and flexible access options that accommodate research schedules
- Create junior/senior engagement campaigns investigating specific barriers through focus groups and targeted surveys
- Launch "Off-Peak Advantage" marketing highlighting less crowded times (8 AM-12 PM, 1-5 PM) with incentives for early or midday usage

Facility-Specific Enhancements

- Expand SRC programming during underutilized lunch (12-1 PM) and evening (8-11 PM) hours when usage patterns show flexibility
- Develop specialty programming for smaller facilities (Climbing Wall, Mt. Mitchell) including academic partnerships, skill-building workshops, and social events
- Create facility-specific usage guides highlighting optimal times and available amenities

Long-term Strategic Development (6-12 months)

Comprehensive User Research

- Conduct mixed-methods research combining usage analytics with qualitative interviews to understand participation barriers
- Implement user satisfaction surveys to assess program effectiveness and identify unmet needs
- Establish benchmark comparisons with peer institutions to contextualize current performance

Technology and Infrastructure

- Develop a real-time facility capacity dashboard for students to view current usage levels
- Create automated reporting systems to track the impact of implemented changes
- Implement predictive analytics to anticipate usage patterns and optimize resource allocation

Policy and Partnership Development

- Collaborate with other App State departments to identify scheduling conflicts and explore integration opportunities
- Partner with Campus Transportation to address parking-related access barriers
- Develop retention-focused programming that maintains engagement across all class years

Resource Allocation Priorities

1. Staff scheduling optimization around the 5 PM peak (highest ROI)
2. Graduate student programming development (largest engagement gap)
3. Data system improvements (foundational for future decision-making)
4. Off-peak marketing campaigns (cost-effective capacity utilization)

Conclusion

This comprehensive analysis of UREC facility access patterns reveals both significant operational opportunities and strategic challenges that require immediate attention and long-term planning. The data demonstrates that UREC facilities are heavily utilized, with over 374,000 total annual visits, indicating strong student demand and successful programming foundation.

Key Findings and Implications

The identification of 5 PM as the critical peak hour, representing 12.42% of all annual visits, provides a clear focal point for operational optimization. This concentrated usage pattern, while indicating student preference alignment, also suggests potential capacity constraints and service quality challenges that require strategic staffing and resource allocation responses.

The demographic analysis reveals concerning engagement gaps, particularly among graduate students who comprise 9% of the university population but only 2% of facility users. This represents approximately 1,400 potential users who remain largely disconnected from UREC services, indicating substantial growth opportunities and the need for targeted outreach strategies.

The dominance of freshman and sophomore participation across all facilities, while positive for early student engagement, raises questions about retention and continued value delivery throughout the academic journey. Understanding and addressing the factors contributing to declining junior and senior participation will be crucial for getting students engaged and contributing to student wellness outcomes.

Strategic Value and Future Potential

This analysis provides UREC with a robust foundation for data-driven decision-making that can significantly enhance operational efficiency and student satisfaction. The methodological framework established through this project can be adapted into ongoing monitoring systems, creating sustainable capacity for continuous improvement and strategic planning.

The recommendations, if implemented systematically, have the potential to increase facility utilization. More importantly, targeted marketing and programming could greatly increase participation rates during off-peak hours. The extent of this improvement will depend on implementation effectiveness and should be measured through baseline establishment and regular monitoring.

Organizational Impact

From an organizational perspective, this analysis demonstrates UREC's commitment to evidence-based management and strategic resource allocation. The insights generated will support budget justification, staff development planning, and facility expansion decisions while providing measurable benchmarks for program effectiveness evaluation.

The project establishes a template for future analytical work that can be expanded to include program-specific analysis, seasonal variation studies, and comparative institutional research. This analytical capacity represents a significant asset for ongoing strategic planning and operational optimization.

Moving Forward

UREC's current participation levels reflect successful programming and facility management, but the analysis reveals untapped potential for enhanced engagement and operational efficiency. The combination of immediate operational adjustments and strategic long-term initiatives outlined in the recommendations provides a comprehensive roadmap for sustained improvement.

The success of this analysis depends on systematic implementation of recommendations, continued data quality improvement, and regular assessment of intervention effectiveness. By maintaining focus on both operational excellence and strategic growth, UREC can strengthen its position as a critical component of student success and campus wellness infrastructure.

This report represents not just an analysis of current conditions, but a strategic planning tool that positions UREC for continued growth, improved student service, and enhanced operational effectiveness in support of the university's broader educational mission.

Appendix

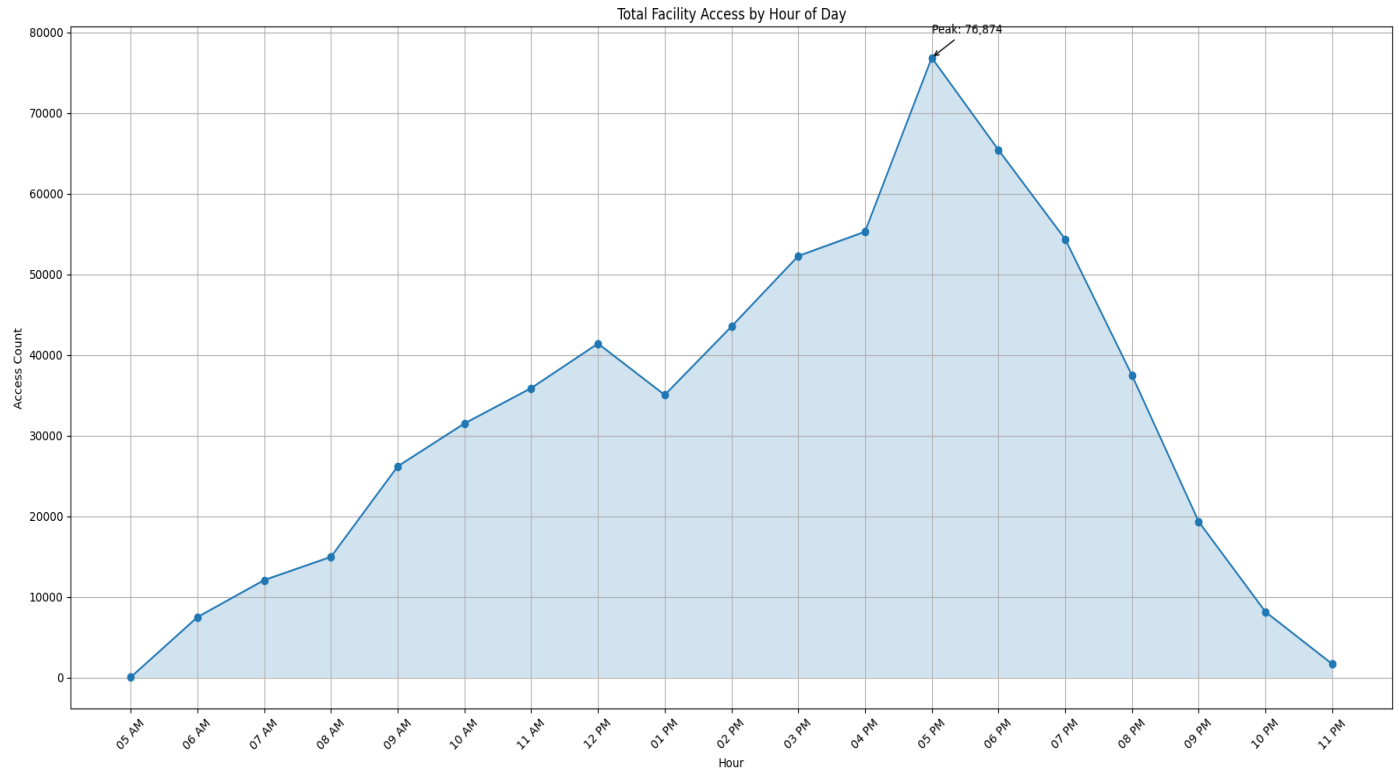


Figure 1

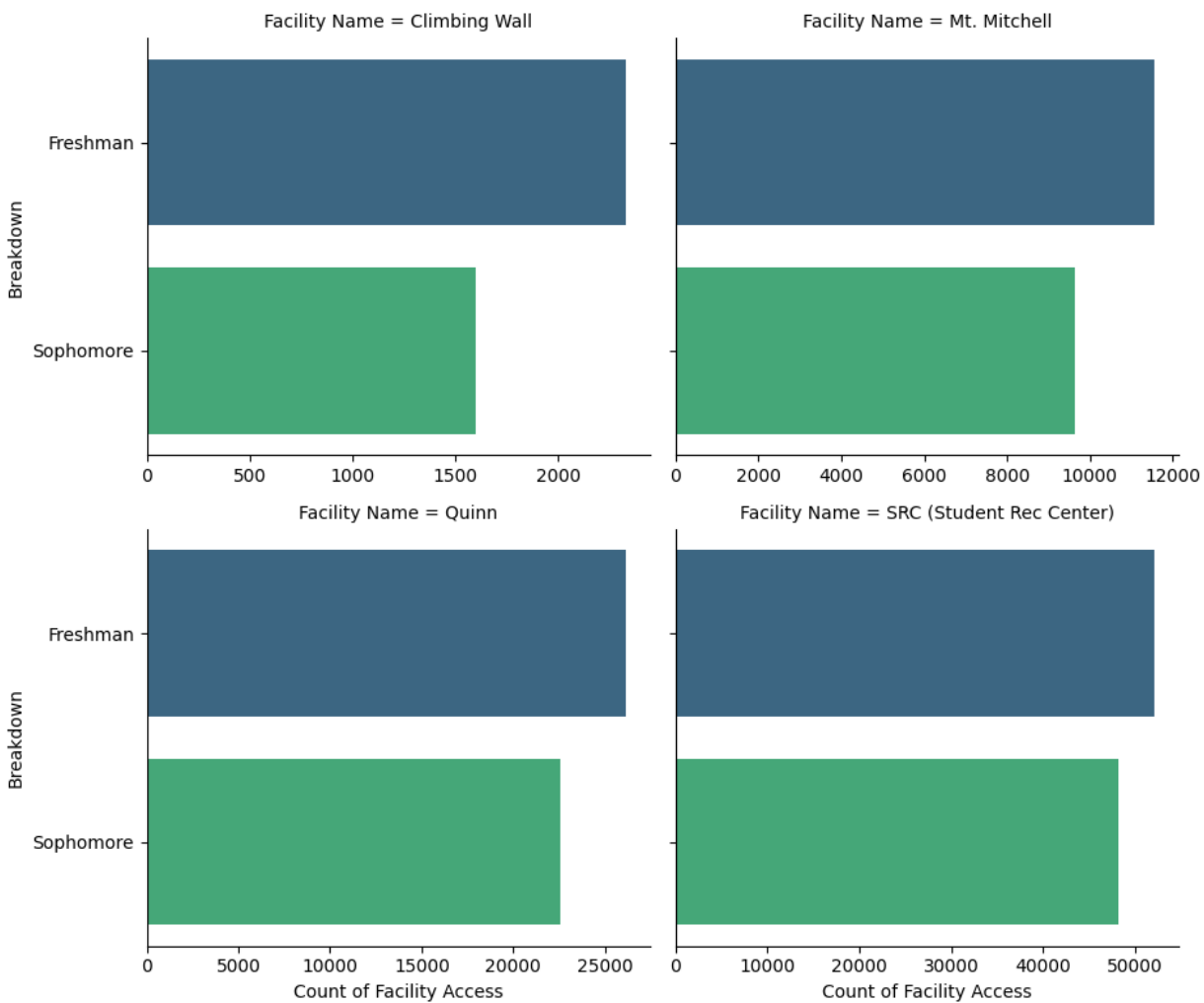


Figure 2

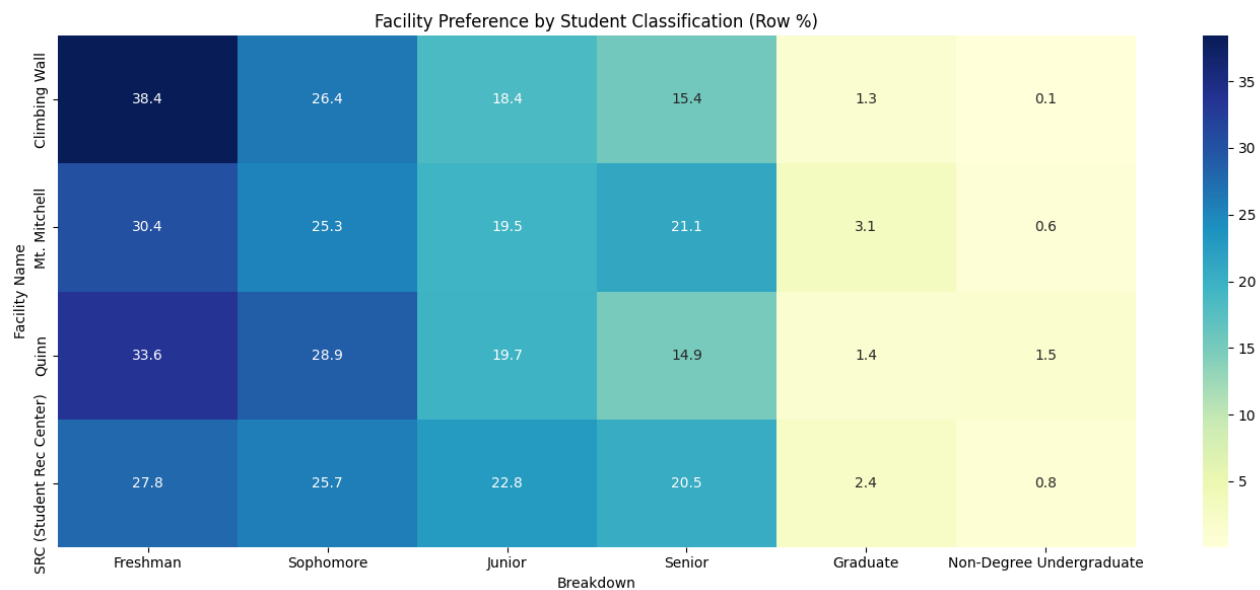


Figure 3

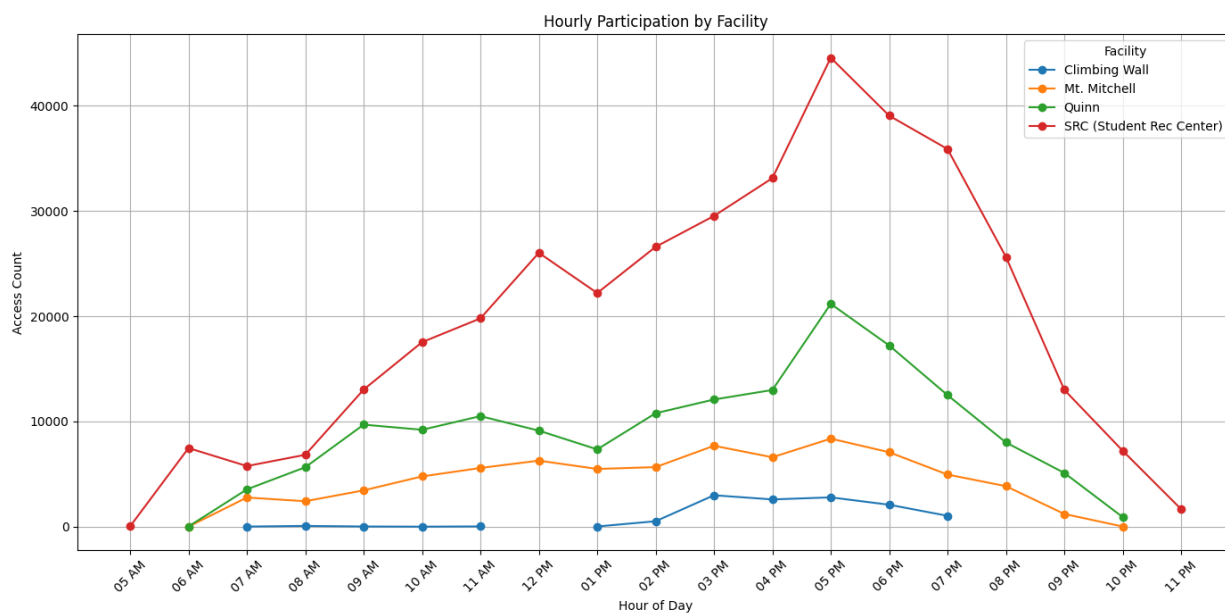


Figure 4

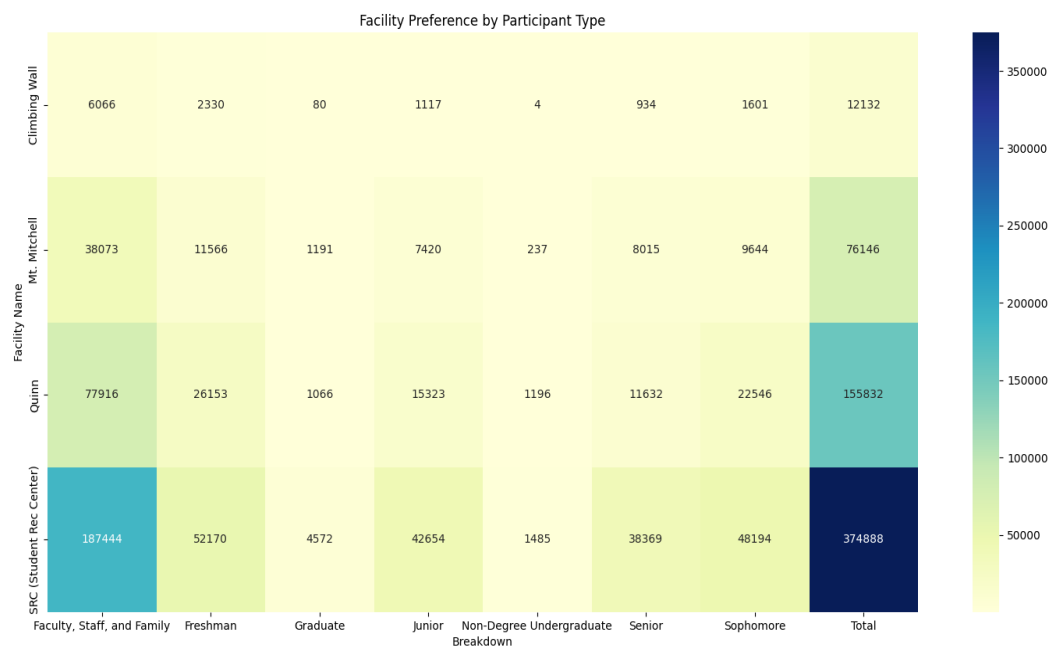


Figure 5

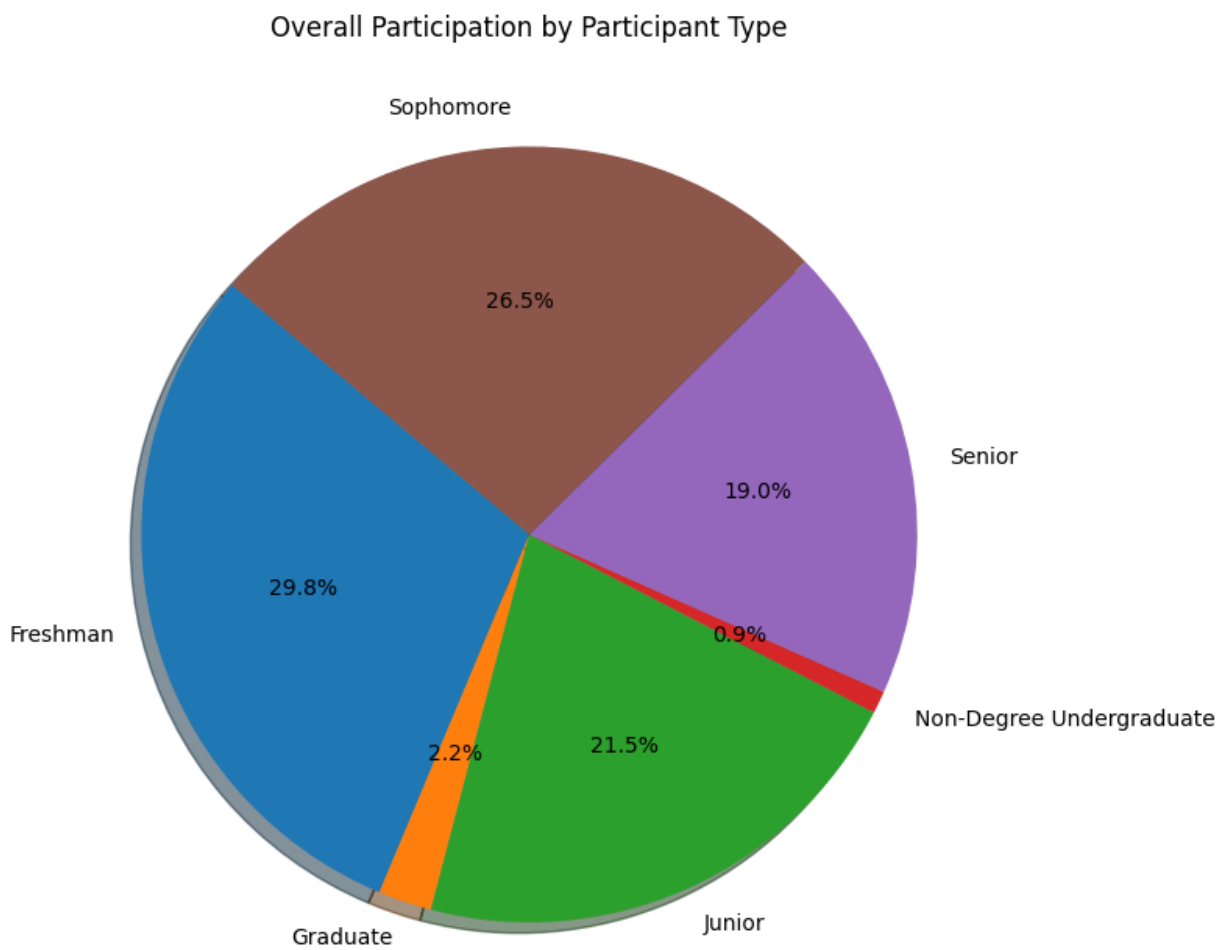


Figure 6