

Grainger Engineering Library Information Center Annual report, 2022

I Unit Narrative

INTRODUCTION

This is a time of change and transition in the Grainger Engineering Library Information Center (GELIC). After 28 years in the GELIC and almost 39 years total as Engineering Librarian, William Mischo has stepped down as Head and has been succeeded, beginning in August 2022, by Megan Sapp-Nelson. Megan was a GA in the GELIC in 2001-2002 and had been at Purdue University for 18 years where she served as the Associate Head of the Department of Information Studies and was the Science and Engineering Data Librarian. This 2022 report will be the last Annual report that I will file, leaving the GELIC in Megan's very capable hands. I will be staying on for another year as *Bibliometrics and Information Research Librarian* to better establish the bibliometrics program in the Library and work on Easy Search usability studies, and will also assist Megan in the transition. This report covers the last several years and also provides a summary or benchmark for the current state of the GELIC.

PHILOSOPHY OF SERVICE

The GELIC was designed to be both a place and a function. The idea of place in academic libraries has evolved dramatically since the building opened in March of 1994. As the GELIC has moved from a print economy to an online environment, the physical space has changed. The GELIC opened with an initial 350K volume print collection, including 1,600 print journal subscriptions, that has now been reduced to less than 119K volumes with only three print journal subscriptions. At the same time, the GELIC has increased seating, study, and student support spaces -- in the form of the Center for Academic Resources in Engineering (CARE), the Computer Based Testing Service (CBTF), and the second floor carrels expansion. The space remodeling has partly been in response to growing enrollments in engineering and an increase in the number of undergraduate and graduate STEM degrees granted over the last 20 years. A full 50% of the 2019 PhDs granted by the university are in the disciplines covered by the three PSED libraries, with engineering departments dominating.

The GELIC librarians and staff have also made significant investments in technology-rich collaboration, innovation, and entrepreneurial spaces, as exemplified by the IDEA (Innovation, Discovery, DEsign, and DAta) Laboratory, the lower level collaboration area, the first floor west design studio, and the remodeled Commons. To illustrate the success of this focus on providing community and collaboration spaces, below is a quote from Harsh Deep, then a sophomore in Computer Science and a regular user of the GELIC, who was interviewed by the Champaign-Urbana News-Gazette in 2020. Deep lamented the closing of the university libraries for the pandemic and noted:

"The libraries are probably more useful than the classes themselves, because that's where people work together and really, really learn. Especially in this major, that matters a lot. If you're doing well, chances are that's how you're doing work. Someone else explains something interesting to you."

The above quote illustrates the success of the GELIC's commitment to providing a collaborative and community environment for instructional and learning support and our desire to provide services and spaces that serve as an integral part of the daily lives of students. After the interlude for the pandemic, the GELIC has seen usage roar back to pre-pandemic levels with over 1.4 million visitors using the building again this last year. The GELIC is the third busiest building on campus, next to the Memorial Union and the ARC and, at numerous times, as measured by the total number of simultaneous wireless internet connections established by users, the GELIC is the busiest building in the entire university at those points in time. Looking at this Fall semester statistics, the building is busier than ever. We are registering over 7,400 visitors a day on peak days, up from an average of 5,800 daily visitors last Spring semester. With the opening of the Campus Instructional Facility next door, we were anticipating a reduction in the number of users entering the building. That has not come to pass. Rather, with the closing of several computing labs in nearby buildings and the move of the Grainger College of Engineering (GCOE) Student Advising office to the GELIC, the building is even busier than it was previously.

As part of the functional aspect of the GELIC, we have focused on the deployment of a suite of user facing services that support the research and instructional mission of the GCOE and the university as a whole. The building was designed to serve as a testbed or incubator for emerging information and computing technologies. To that end, we have secured some 14 million in grant funds over the 28 years, mostly from IMLS, NSF, and the Mellon Foundation, including the early foundational work performed under the NSF/ARPA/NASA Digital Library Initiative I (DLI-I) project, the follow-on Corporation for National Research Initiatives (CNRI) supported grant and Publisher Partners program for the continuation of the full-text journal Testbed in marked-up format, and the NSF supported National Ethics Center grant. The DLI-I work served as an early model for the establishment of full-text publisher repositories and included the minting of some of the very first DOIs (Digital Object Identifiers) that were generated for publisher full-text articles.

GELIC investigators had a vision of the Library Information Workstation (LIW), a multi-purpose, one-stop-shopping suite of bibliographic tools, resources, and integrated services to increase research productivity and contribute to instruction and scholarship. This has been expanded over the years into both the Easy Search system and the GELIC GRIPT (GELIC Research and Information Productivity Tool) systems that serve as discovery and delivery services for the scholarly communication workflow and as research and instructional productivity tools. Reading my early descriptions from 1993 of the multi-purpose workstation now, I see that while I didn't anticipate some of the new information technologies and some of the GoogleZon commercial entities, I wasn't that far off in the projection of the needs and mechanisms for providing these research workflow services.

The LIW has been intertwined with the development of the enhanced OPAC (Online Public Access Catalog) and the current discovery and delivery tool – the Easy Search bento-style discovery system. Easy Search is the direct descendant of earlier work on IO+, IBIS (the BRS/SEARCH system), various metasearch efforts, and an earlier trial of Primo. Easy Search provides comprehensive retrieval of the scholarly literature on a topic or by an author and also provides convenient fulltext access, links to supporting datasets used in the production of the research, links to citing articles, information on how often the articles have been tweeted or blogged about, and whether there is open access availability.

The open design allows the introduction of value-added links into the environment. This is what I will continue to work on for the next year or so. While much of the feature set of Easy Search was developed under grant funds focused on STEM disciplines, the Easy Search suite addresses the information needs of students and faculty in all disciplines. A detailed transaction log article describing user search behavior within our bento-style discovery environment is currently being readied.

To meet many of the GELIC facility modifications and service and collection needs, we are fortunate to have several endowment funds at our disposal. Most of the principal for these endowment funds was raised initially by the Engineering Librarian and College of Engineering Development staff. The ask for the Emerson Schroeder \$1.2 million bequest and the \$200K Rolf Peterson gift were made by William Mischo, Chuck Doering, and Judy Algozin.

COLLABORATION EFFORTS

Several GELIC faculty work very closely with the Library Research Data Service (RDS) in assisting researchers with Data Management Plans (DMPs) for NSF, NIH, DOE, and other grant agencies. GELIC faculty have published widely and made presentations on data support services at numerous conferences, including internationally in Japan, China, and at the Internet Librarian International in London.

Likewise, GELIC researchers have close contacts with Library IT in software development and hardware support, particularly with regard to Easy Search development and maintenance, the Primo implementation, and other public facing web sites such as the Planets service.

GELIC faculty and staff have also established a number of collaborative working relationships with other units and departments on campus, particularly with NCSA, the Beckman Institute, and, most recently, with the Siebel Center for Design, where we have built a design learning database and have a GA embedded in the Help Desk of the Center.

We have also established a number of international relationships with the International Institute for Carbon Neutral Energy Research (I2CNER) and Kyushu University in Japan, JISC and the UK Research Excellence Framework in England, the JSTAGE group and Nippon Telephone and Telegraph in Japan, and the SCOAP3 project group at CERN.

PANDEMIC ACTIVITIES

The GELIC closed to the public in March 2020 because of the pandemic. In mid-April 2020, GELIC staff began a book pick-up program for patrons who had remotely charged out circulating monographic items. Several staff and librarians participated in this service. GELIC staff informed patrons by email when items they requested were available for pick-up and then distributed these circulating items from the loading dock door, always being conscious of staff and patron safety.

In September 2020, as the State moved to Phase 4 in the Governor's Return to Work guidelines, the GELIC partially re-opened in a controlled manner to the public. Given the Phase 4 limits of 50 people in

an area and a maximum capacity of 20% occupancy, the GELIC designated 120 seats in the building that patrons could reserve using the Libcal Seats software. The seats were strategically scattered throughout the building with the lower level and 4th floor west closed and only selected engineering workstation lab machines enabled to maintain social distancing. Additional seats were made available as the semester progressed. Users were asked to enter the south door, using their I-cards, and a campus Wellness Support Associate (WSA) was stationed at the door to check entering students for negative Covid tests on the Illinois ROKWIRE mobile application. This whole experience gave us valuable experience with opening the building for limited usage and with the Libcal Seats application.

FACILITY CHANGES

The GELIC as a facility has evolved since its opening in 1994 and there have been a number of changes introduced in the last 10 years. The Espresso Royale coffee shop was added after an RFP process in 2014. The corporate Espresso Company went bankrupt in 2020 but the former local franchisees bought the Champaign-Urbana Espresso locations and opened several of them back up, including the GELIC location, with the same name in 2021.

The 2nd floor east and 2nd west stacks areas were dismantled, with the collections moved to Oak Street, and replaced with carrel seating. This increased the GELIC seating by some 280 users and relieved seating issues that were vexing students – who complained on Reddit -- for several years. Several additional electrical circuits were installed to accommodate the electrical requirements of the banks of carrels.

The CARE (Center for Academic Resources in Engineering) Center opened in the Fall of 2011 and has provided peer tutoring, mentoring, exam review sessions, high-end engineering workstations, and collaboration spaces for students – primarily freshmen and sophomore students. In addition CARE has hosted wellness presentations from the McKinley Health Center and stress and mental health support by the campus Counseling Center. In the Summer of 2022, the GCOE Advising Offices moved into the GELIC 4th floor East area replacing the Scholar Studies.

In 2017, the 1st floor west design studio area was constructed to mirror several of the studios being planned for the Siebel Center for Design. Both David Weightman and Andy Singer have taught classes in the space and that area has become a very popular space for students working on collaborative projects, particularly in the evening when the space is always full. The students utilize the whiteboards and the large screen monitors for group projects.

The Computer-Based-Testing-Facility (CBTF) for administering online tests and quizzes for engineering, chemistry, physics, and mathematics undergraduate and service classes was opened in room 057 in 2015. This has proven to be enormously successful and very popular with the students. Seating benches for students queuing up to enter were added in 2016.

A Respite Room was created in 2018 in the lower level room 052, and was moved to the second floor room 229 in 2022.

An Immersive Capture Studio, originally funded by Technology Services monies transferred to the Library, has been moved from the Undergraduate Library to the lower level of the GELIC.

IDEA LAB

The IDEA Lab, which opened in late 2015, was remodeled in 2021 to reflect staff and student needs and to create several new areas, including a help desk, the large scale visualization theater (the Visualization wall area), the immersive learning lab, a development studio, a usability lab, an entrepreneurial pitch room, a business entrepreneurial room, and several additional collaboration rooms. The informatics lab, virtual reality and augmented reality areas, and several staff offices remained the same but additional small innovator design rooms and staff offices were created from the original rooms. In addition, lounge furniture and seating was added to the lobby area and the 3D Print Studio was moved to room 053.

The initial IDEA Lab funding came from a combination of Library funds, GCOE funds, and GELIC endowment accounts. The remodeling was accomplished with GELIC endowment funding.

GELIC researchers received a sub-award of \$45K from a Mellon Foundation grant on Immersive Scholarship that was administered through the North Carolina State University Library in 2018. Project funds were augmented by additional funding from the UIUC academic computing center (Technology Services) for programming staff and from internal endowment funds to continue development work on a number of projects initiated in this grant and related to immersive scholarship services.

The goal of the grant was to address user's immersive scholarship research and instructional needs. One of our goals was the development of portable and extensible software tools, learning objects, and templates that can be applied in large-scale library visualization and also virtual reality environments. Several of these projects involve custom tools and services employing XR (Extended Reality) technologies, including Virtual Reality (VR), Mixed Reality (MR), and Augmented Reality (AR), and general infrastructure and testbed capabilities for XR immersive scholarship applications.

The IDEA Lab has been involved in a large number of user-based projects in the last several years. These include:

- New partnerships with the UIUC VR Club and Illini Esports were established. High-end computer hardware was purchased and peripherals were donated by Team sponsors;
 - Esports Scrimmages, individual practice, and (soon) public events including competitions;
 - VR Club Open meetings with presentations on VR use on campus, including by student groups such as Physics, Hands-on demos, outreach, networking, Developing VR with Unreal Game Engine tutorials;
- The partnership with the ME 470 Design Class was expanded;
- Several iSchool Informatics classes, including the Entrepreneurial IT Design course were taught by Michael Twidale using the visualization wall, collaboration rooms, and the Informatics Lab;
- CUBE Consulting RSO group meetings and use of the visualization wall;
- Dev Studio Consultation meetings with Accounting faculty Justin Leiby;
- SDC software support for Gies Business PhD students (coordinated by Becky Smith);

- Cloud Data Lab CI COM 3 5-hour "hackathon" style machine learning development sessions for student organizations and 6-month machine learning project working with Amy Wagoner;
- The IDEA Lab is a node in the Health Maker Lab network and numerous projects connected with the Health Maker Lab Make-a-Thon have been coordinated by Alex Cabada;
- Coordinated with Technology Entrepreneur Center on the COZAD competition activities and other initiatives;
- New partnership with Dance faculty was established / NCSA researcher (John Toenjes);
- University Library funded project 3DS3 (this includes a grant for a high-end Scanner and the establishment of a Scanning service. Working with iSchool PhD candidate Yingying Han);
- Expanded Loanable Technology (new access policy allows more patrons to make use of the service; added additional tech such as Oculus Quest 2s and Microsoft HoloLens 2);
- Immersive Learning Lab mockup with 10 new high-end workstation;
- Cloud Data Lab usage from CI COM.

Development projects. All Code bases open-sourced and moved to [GitHub](#)

- Project Komodo VR classroom tool
 - 2021 Best Emerging Technology Application Award (ALA, RUSA; podcast episode recorded);
 - Development blog started;
 - Continuing partnership with FAA (Chiara Vincenzi) and MSE (Andre Schleife) faculty;
 - New partnership with College of Education PhD researcher (James Planey; analyzing relative efficacy of VR-based instruction);
 - New consultation with Accounting faculty (Justin Leiby) on using VR/AR for course;
 - Production deployment: <https://komodo.library.illinois.edu> ;
 - Hired and on-boarded replacement for VR developer;
 - Hired and on-boarded 2 iSchool practicum developers for data & web dev.
- 3deposit (a 3D-content management platform)
 - Worked with Yingying Han on data model and metadata design;
 - Continued application development;
- Ginger (a suite of tools for creating 'Street View'-style tours using 360 photos)
 - Trained ISAC committee intern on desktop application usage. Received feedback from intern on usage.
- Project supervised by Professor John Toenjes, Faculty Fellow NCSA
 - He and his team of grad students are building a custom VR application
 - Weekly reserved development times
 - Hardware/software support (headsets, workstations, loanable tech, Unreal Game Engine and VS custom installs).

In addition to these specific groups the Lab is also frequently used by small student groups to work on class assignments and projects, and to check out and use Loanable Tech.

Information on the number of student group bookings in the IDEA Lab: (not including Esports Team and VR at Illinois Club)

October '21: 650 bookings/reservations

November '21: 598

December '21: 455

January '22: 99

Feb '22: 672

March '22: 585

April '22: 577

COLLECTION DEVELOPMENT

The GELIC collection development budget has gone from \$190,000 in 1982 to over \$2.5 million in FY 2023. This was not without much growing pains, negotiation, hundreds of serial cancellations over the years, reinstatement of some subscriptions, and much overall angst. While the materials budget is relatively stable now, there is still a strong dependency on the campus providing yearly inflation funding – and there is no guarantee of this in the future.

A Read and Publish three-year agreement was signed with IEEE in 2020 that provides funds to pay the Article Processing Charges (APCs) for articles in IEEE journals that have UIUC authors as the corresponding author. These UIUC authored articles have then be published as open access to the world. Funding for the paid up-front APC charges comes from the Library, the ECE department, the GCOE Dean, the UIUC Provost's Office, and the UIC Library. Over 370 articles written by UIUC researchers in IEEE journals have been made open access under this agreement as of October, 2022.

GRADUATE ASSISTANTS FOR FY22

- **Paid on Library Allocation (allocated 3.75 FTE)**
 - 50% Leah DiCiesare
 - 50% Matthew Cain
 - 50% Kendall Neuman
 - 50% Annika Deutsch
 - 50% Karina Cooper
 - 50% Zoe Peterson
 - 50% Genna Hilbing
 - 25% Elizabeth Marathas + 25% Chemistry Library Wert endowment and Math Library fund
- **.5 FTE from CI COM transfer to Library = Total of 4.25 FTE GAs from Library Funding**
 - 50% McKinzie Hororo (from Carle Illinois College of Medicine)
- **Paid on Railroad Engineering AAR Tech Grant**
 - 50% Andres Molina
- **Grainger Endowment Fund for hourly GA**
 - Kriss Hinders (hourly on Grainger endowment)

The Graduate Assistants perform a variety of pre-professional library duties including: direct patron assistance at public service points, chat reference assigned hours, duty officer responsibilities where

they supervise students and are in charge of building operations, projects involving software maintenance and development (typically databases and web sites maintenance), collection development activities, library instruction and literacy sessions, and assisting GELIC librarians with literature reviews, liaison activities, and project support.

II Statistical Profile

1. Facilities

User seating counts (if applicable)

1. at tables – 623
 2. at carrels – 376
 3. at public workstations – 173 includes EWS machines
 4. at index tables – 0 counted 12 as carrels
 5. in group study rooms – 116
 6. informal/other – 100 soft seating
- TOTAL = 1388*

This does not include the Computer-Based-Testing-Facility (CBTF) with 90 seats, and CARE's 401–404, 429 and 433, which is about 128 seats.

1. Number of hours open to the public per week (if applicable)

1. Summer II 2021 – 52 reservation only
2. Fall 2021 – 123
3. Spring 2022 – 123
4. Summer I 2022 – 76

2. Personnel

- List, by name, all faculty, academic professionals, civil service staff, and graduate assistants assigned to the unit in FY22.

Sheila McGowan LOA (retired 2020)

Anne Silcox LS

D'Anne Winston LS

Jamie Hansen LS

Joe Hall-Ingram LOA

Megan Johnson SLS (left for a position at NCSA, 2022)

Russell Clark LS (left to return to teaching in Oregon, 2021)

Anna Gerard SLS

Dirk Ton LS (started as Extra Help, moved to LS, 2022)

Rob Wallace ITA (left to form a startup, 2021)

Paula Adams SLS (transferred from UGL, 2022)

Mitchell Loyd LS (transferred from UGL, left for a position in North Carolina, 2022)

Stuart Turner ITA (began 2022)

William Mischo PROF

Elisandro Cabada AAST PROF
Becky Smith ASSOC PROF
Monica Carroll ASST PROF
Chris Wiley ASSOC PROF
Peg Burnette ASSOC ROF
Jay Heldreth AP

Affiliated PSED Faculty
Tim Cole PROF (retired 2020)
Mary Schlembach ASSOC PROF
Heidi Imker ASSOC PROF

Student Wage Budget 2021: 173,400

2. User Service

- Gate Count (as reported during FY22 Sweeps Week programs)
 - 963,000

- Circulation (from Alma fulfillment reports)
 - 11,496
 - 10,027 by collection
 - 3,010 renewals by collection

- Reference interactions
 - 11,152 extrapolated with 5,452 in Desk Tracker

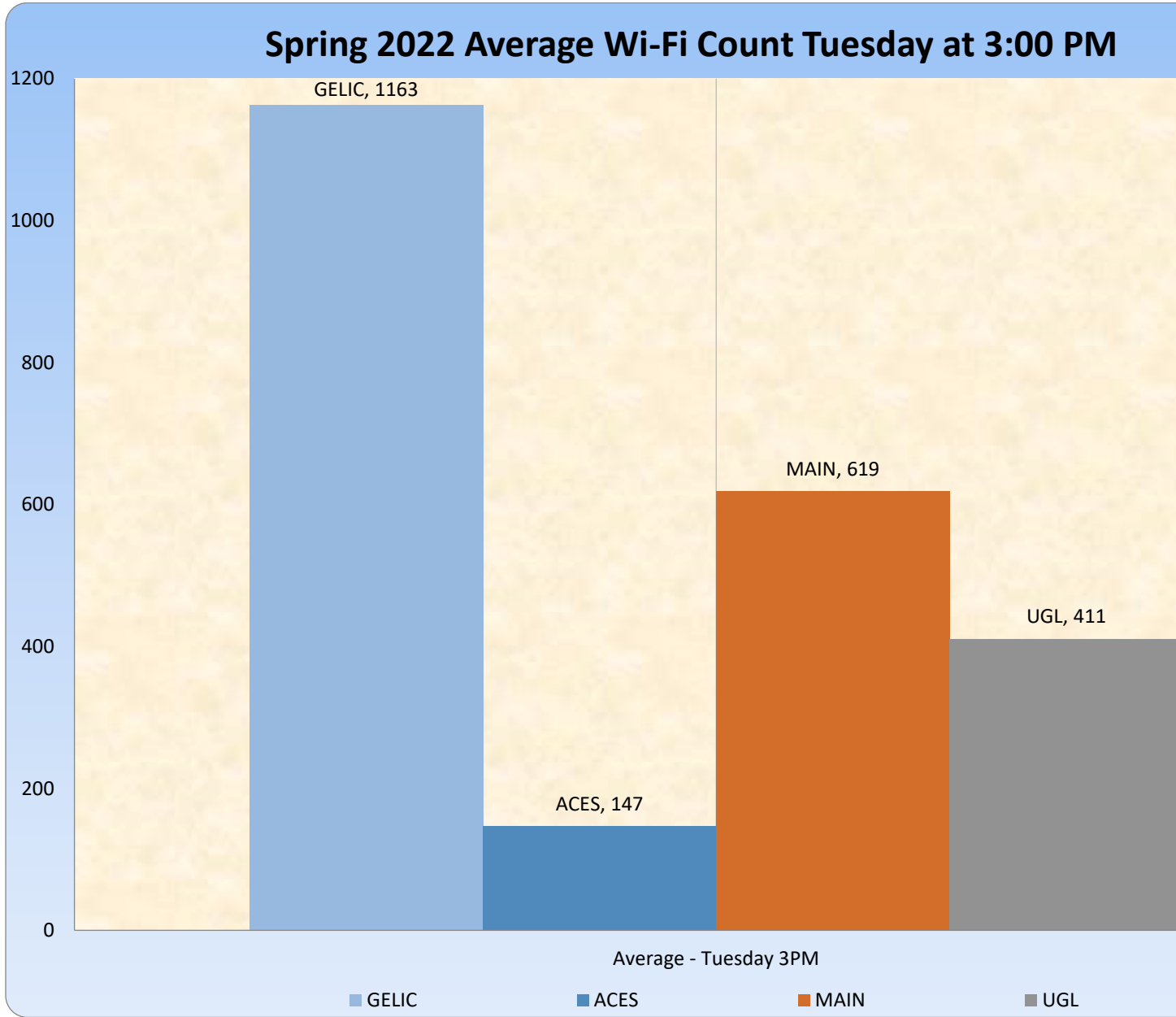
- Presentations (from the Instructional Statistics database)
 - 20 presentations, 950 attendees

Two appendices with sets of graphs showing sweeps weeks user counts and wireless user counts are attached.

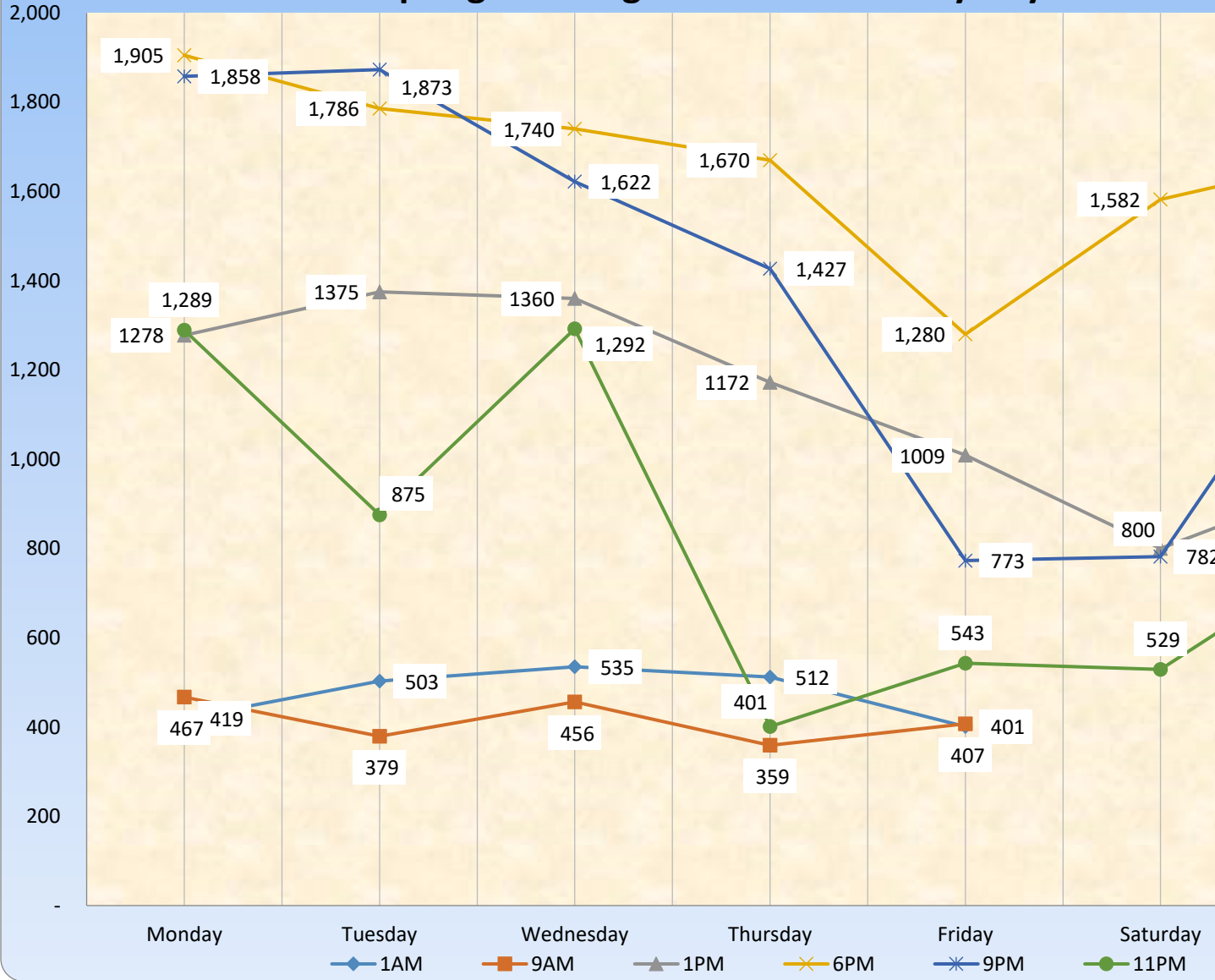
Thanks,

William Mischo

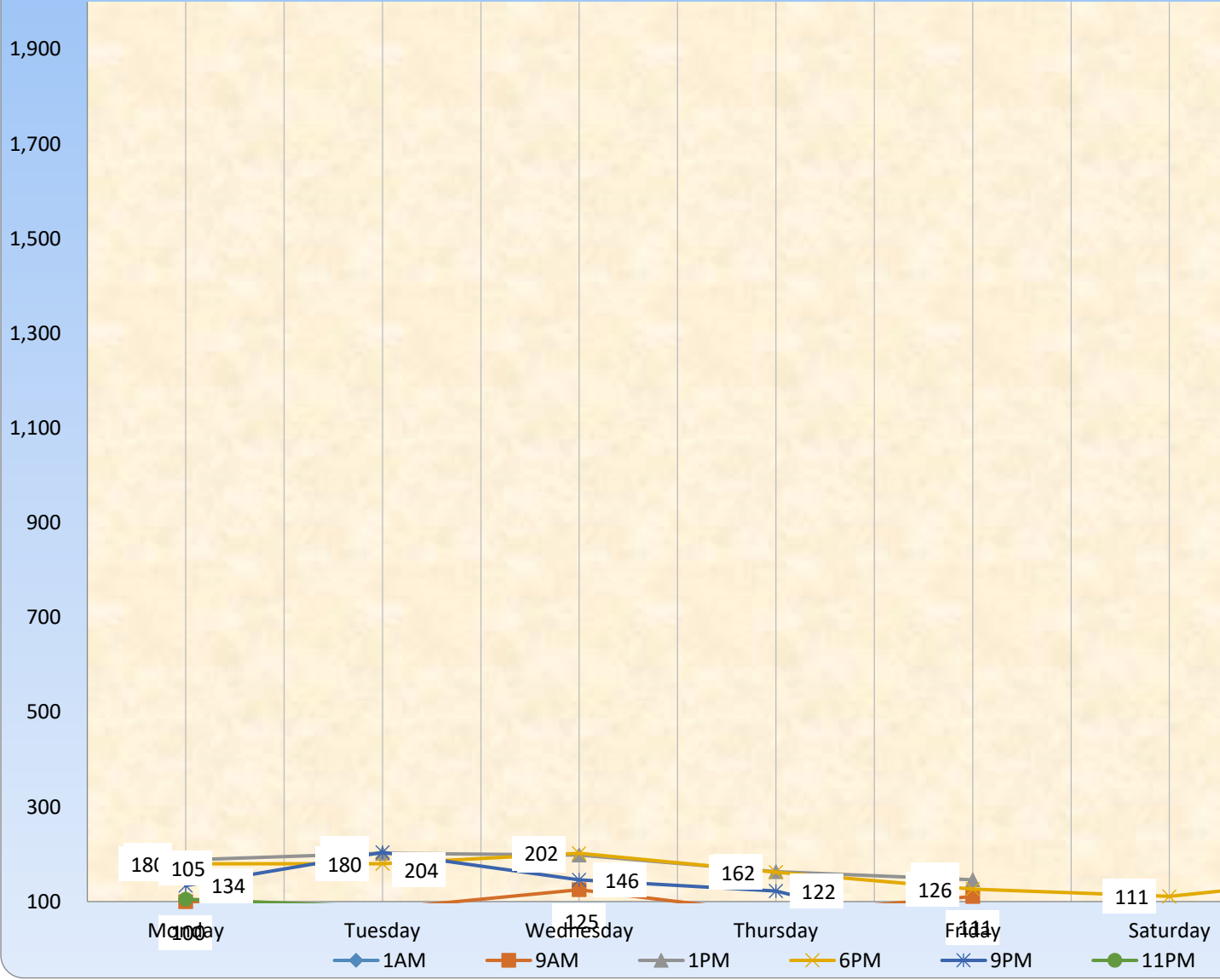
Appendix I: Wireless User Counts Comparison of GELIC, ACES, Main, and UGL



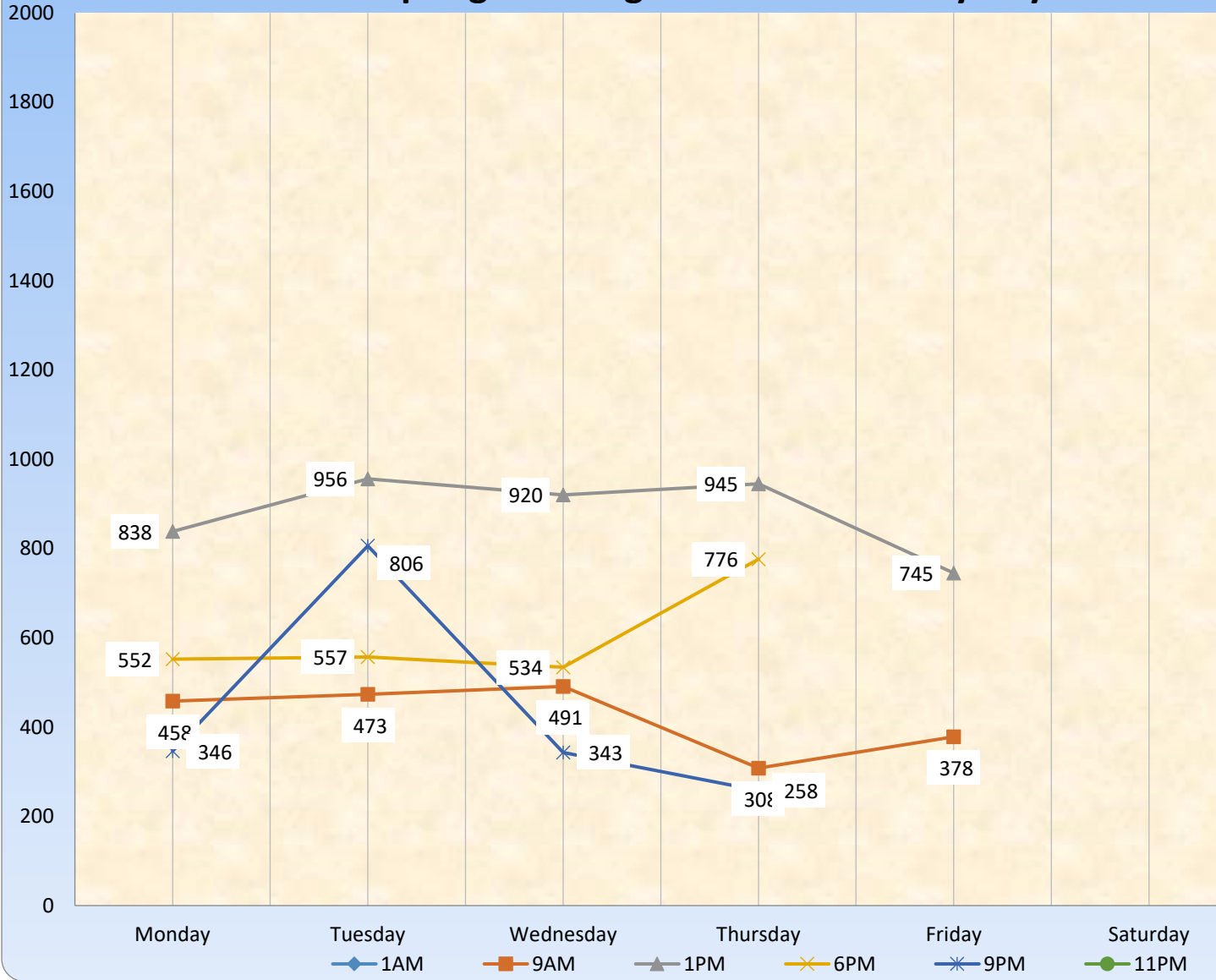
GELIC - Spring 2022 Highest Wi-Fi Count by Day and Time



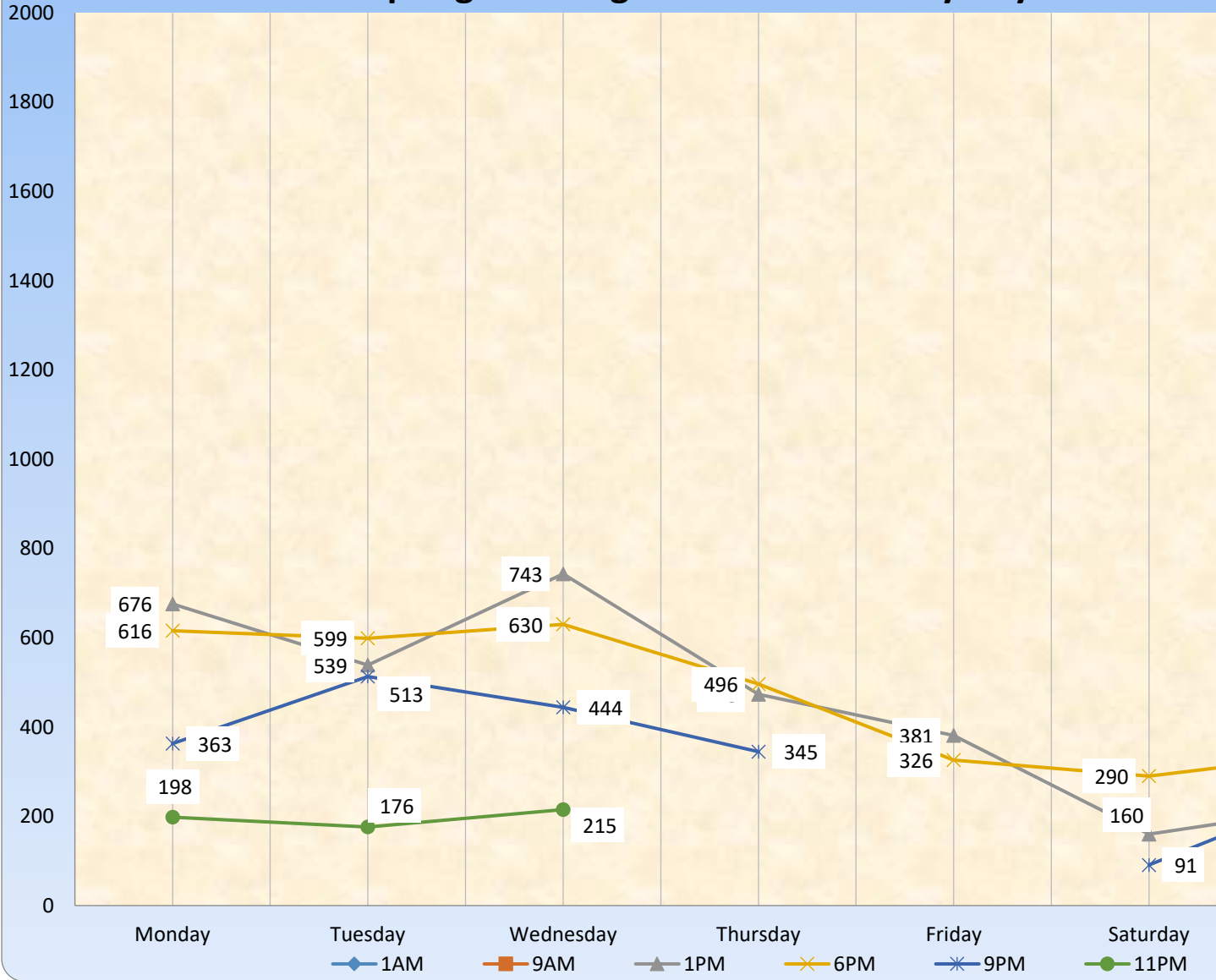
ACES - Spring 2022 Highest Wi-Fi Count by Day and Time



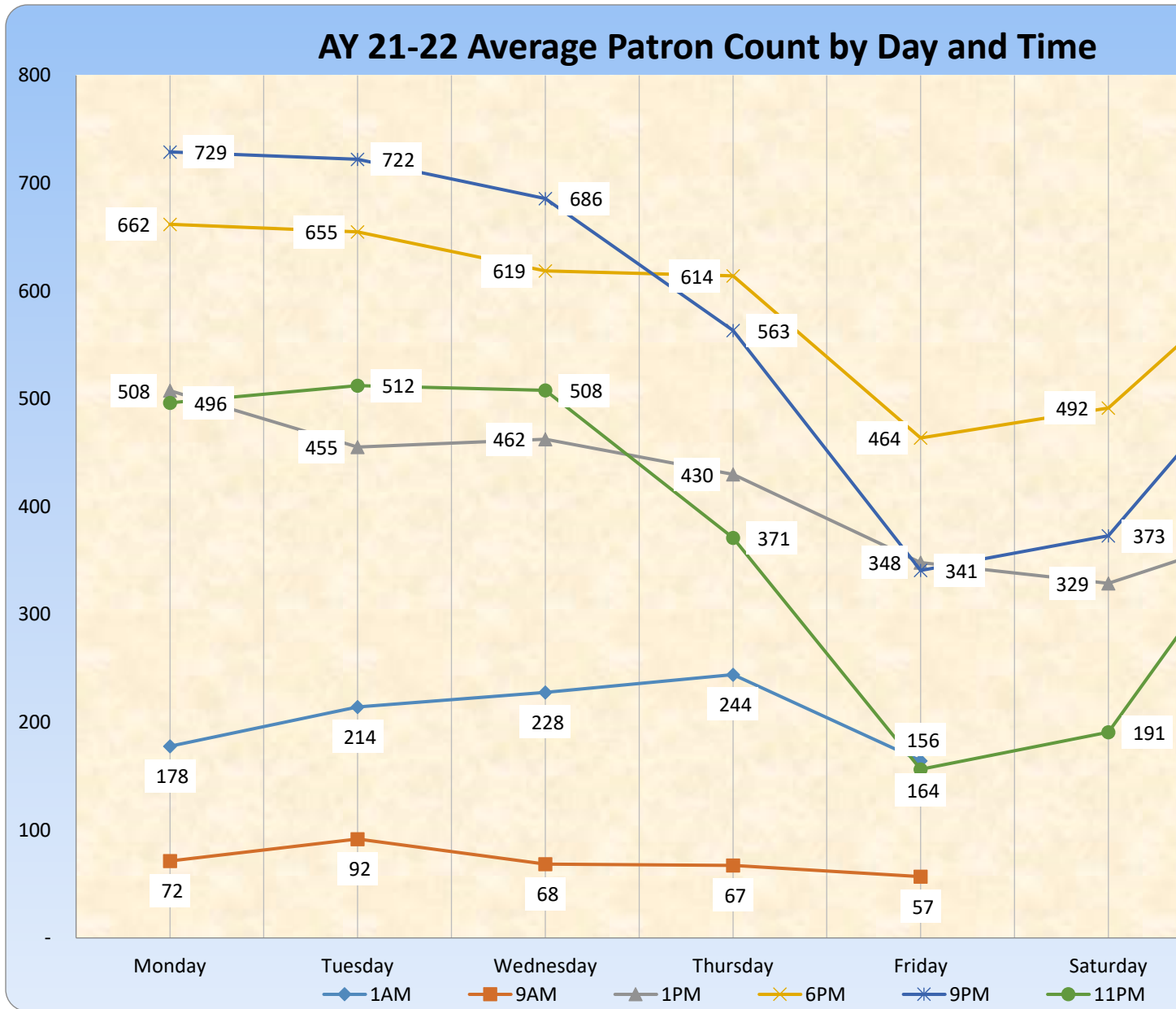
MAIN - Spring 2022 Highest Wi-Fi Count by Day and Time



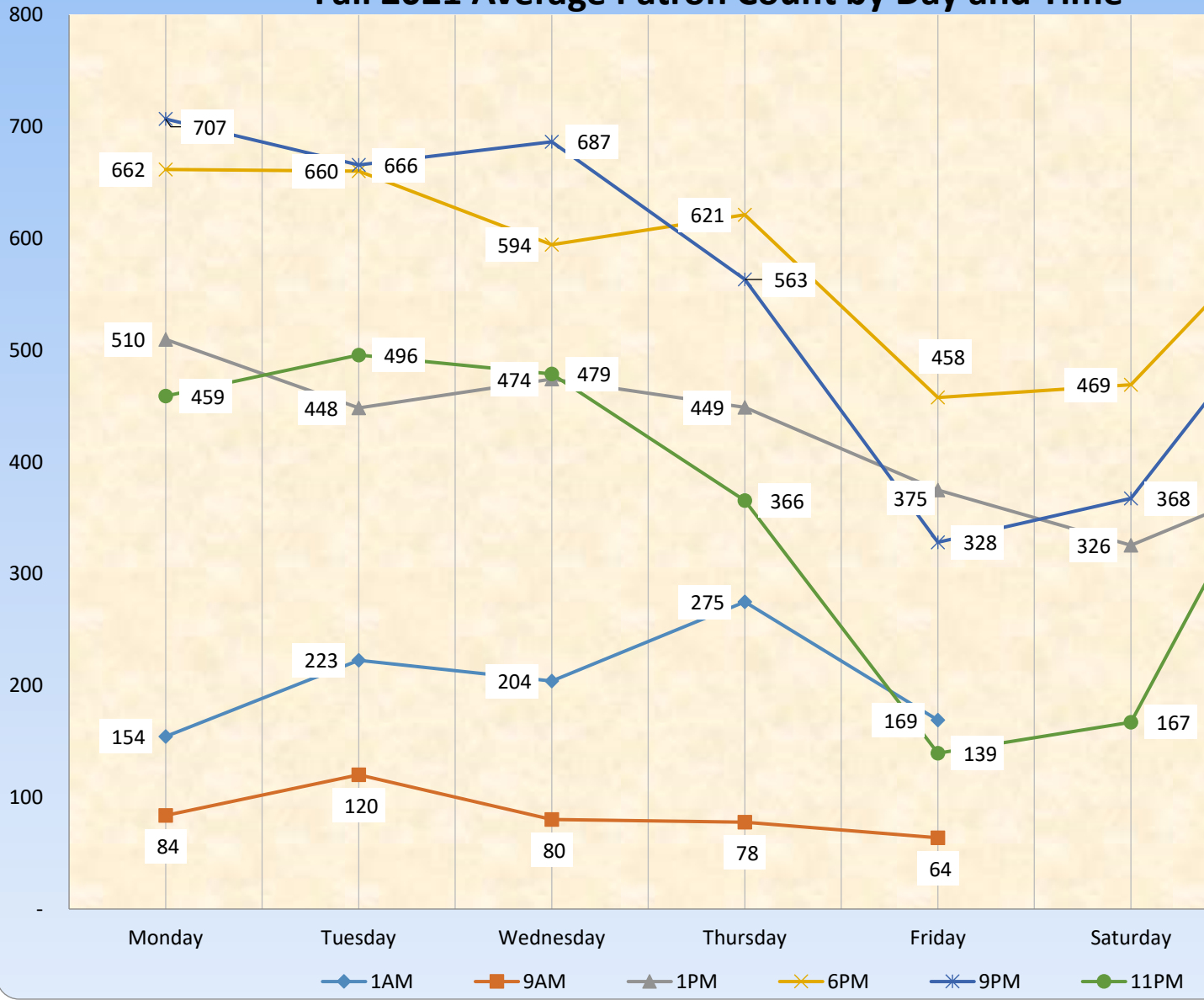
UGL - Spring 2022 Highest Wi-Fi Count by Day and Time



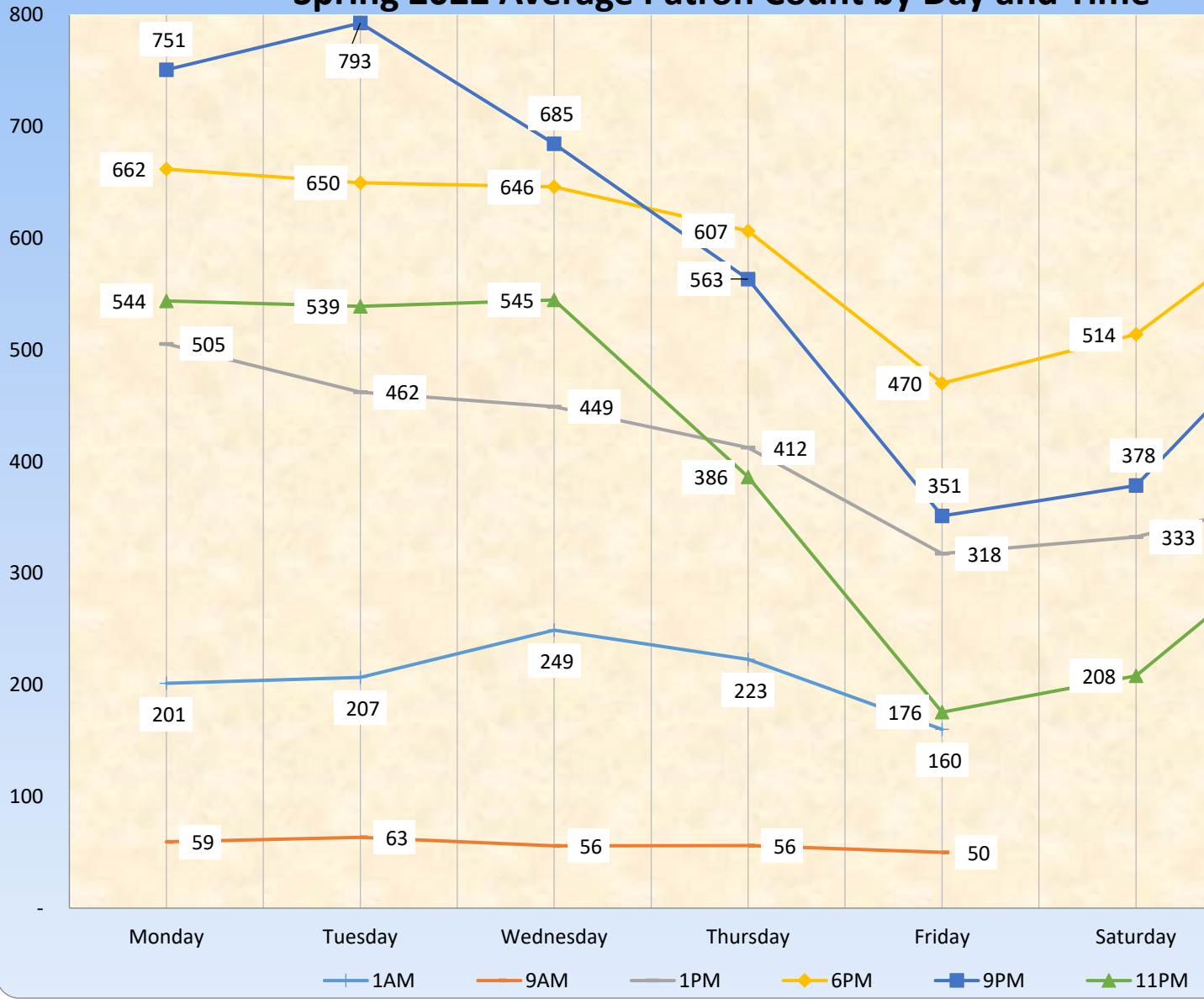
Appendix 2: Patron and Wireless Counts 2021-2022



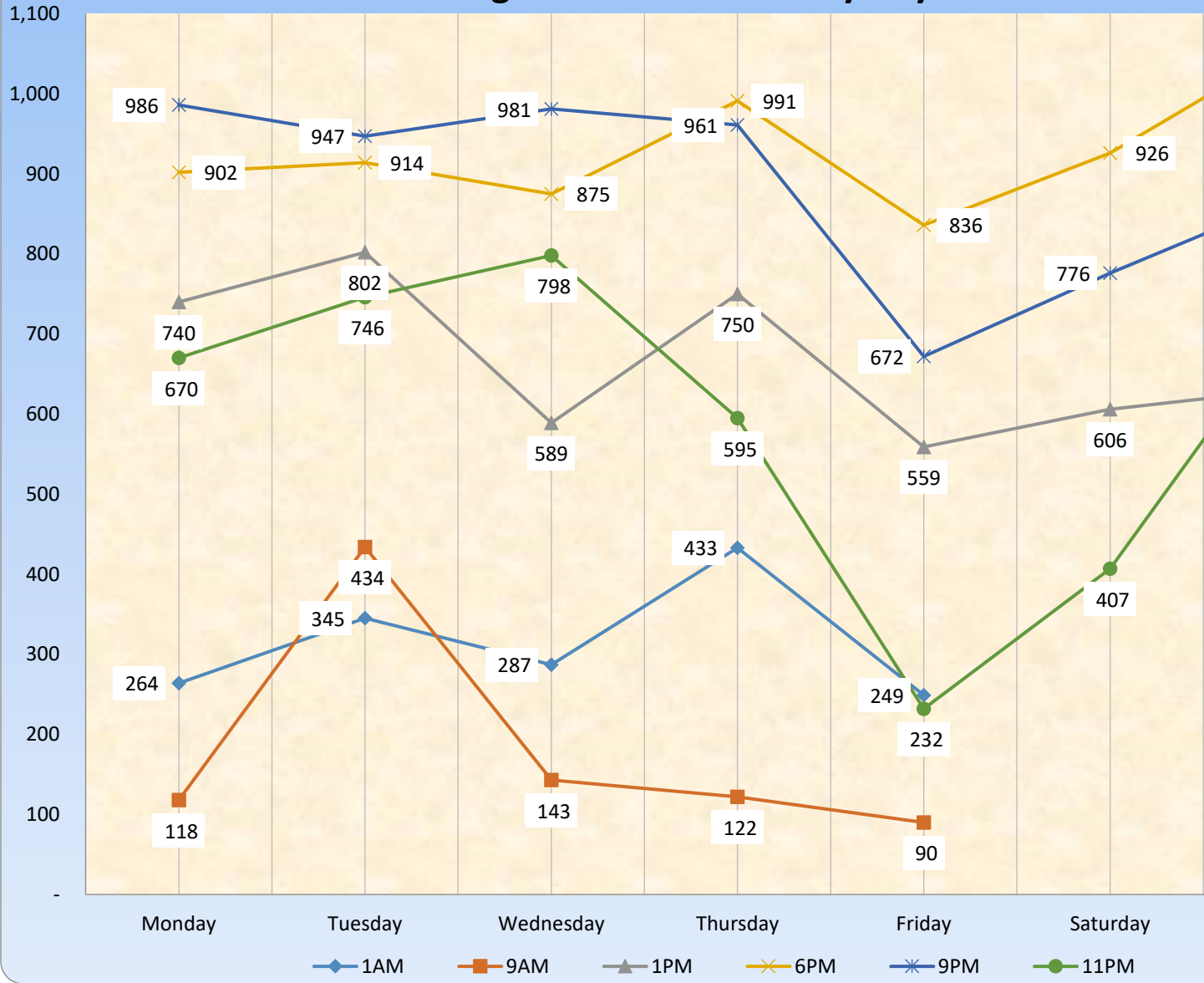
Fall 2021 Average Patron Count by Day and Time



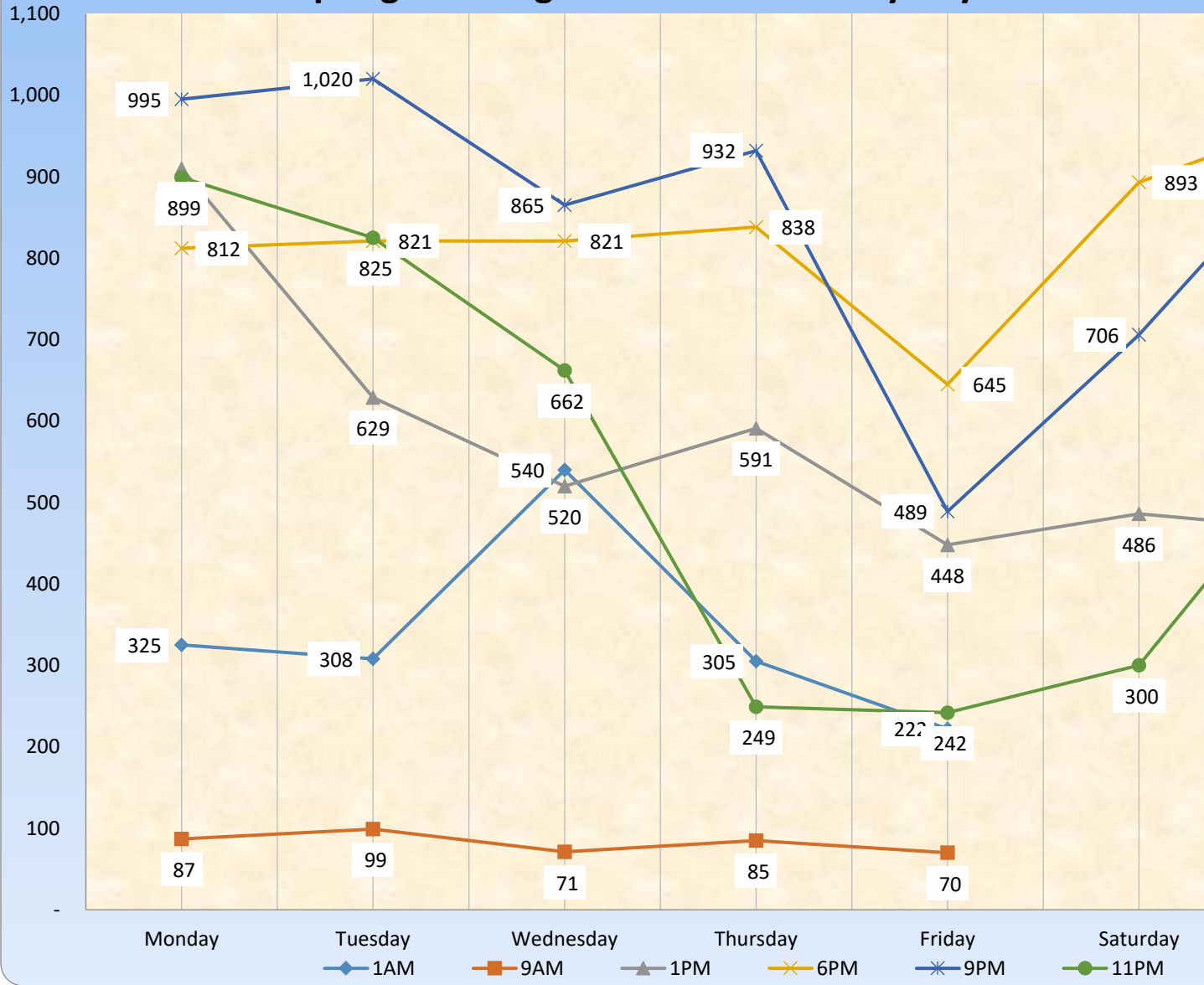
Spring 2022 Average Patron Count by Day and Time



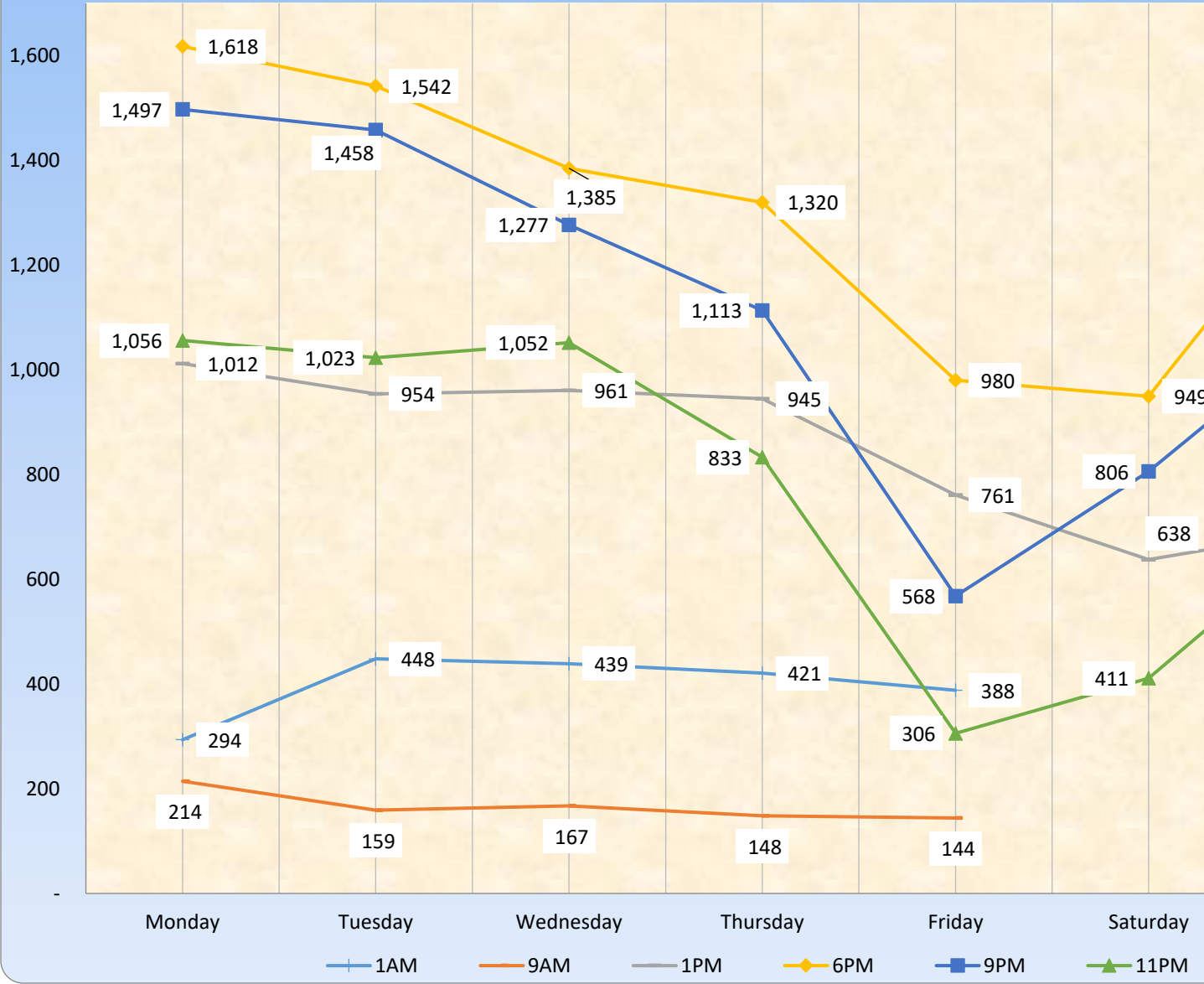
Fall 2021 Highest Patron Count by Day and Time



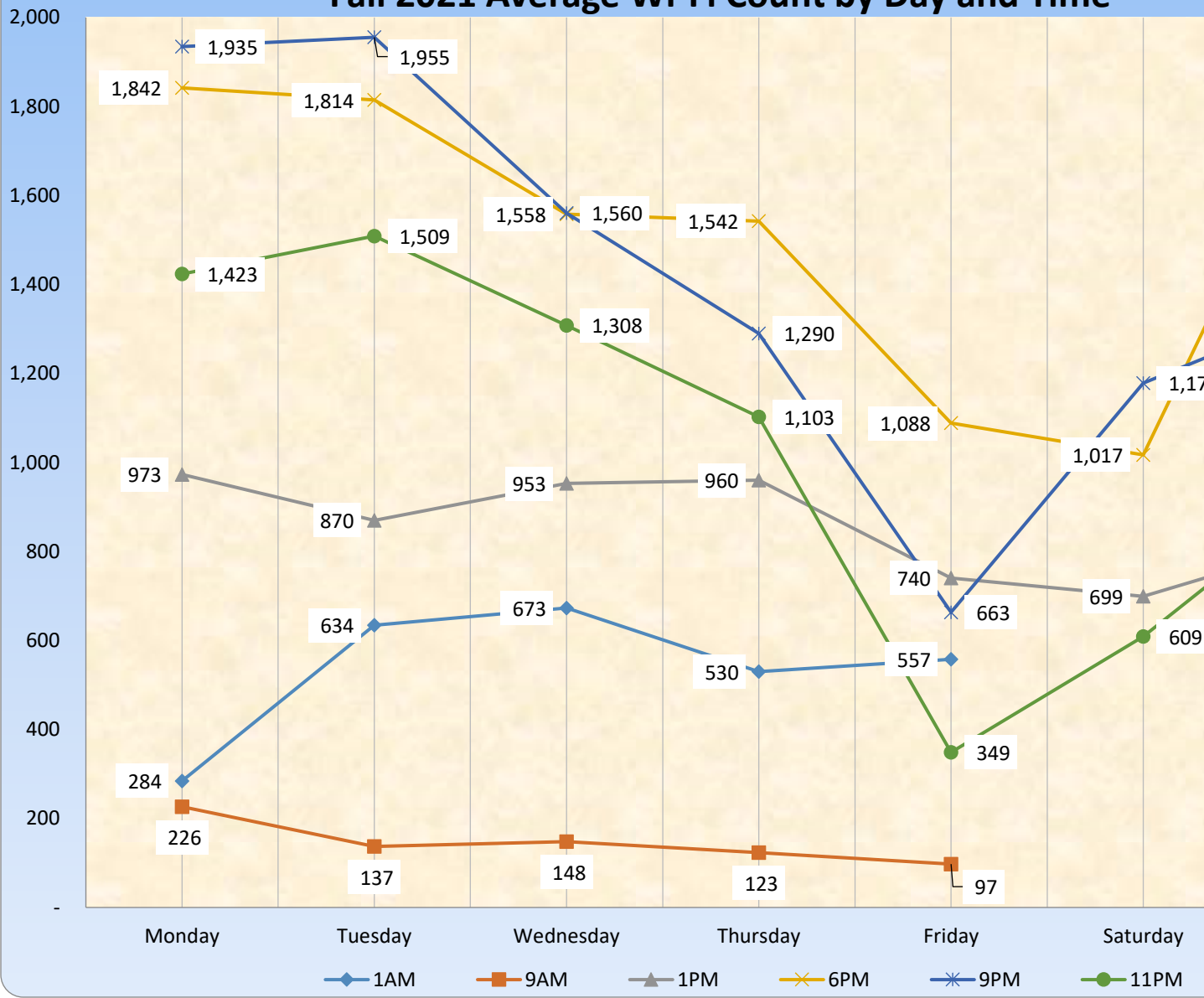
Spring 2022 Highest Patron Count by Day and Time



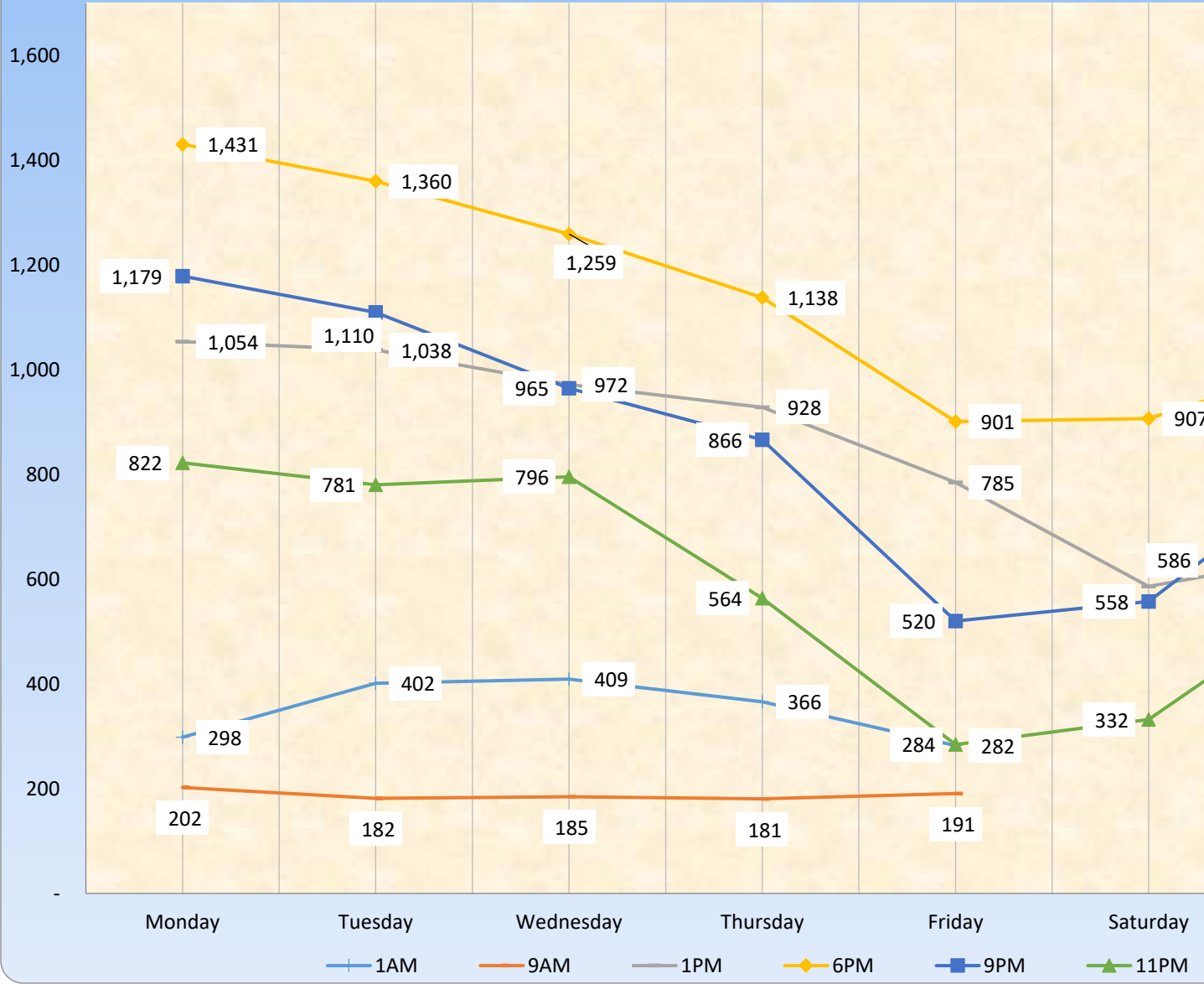
AY 21-22 Average Wi-Fi Count by Day and Time



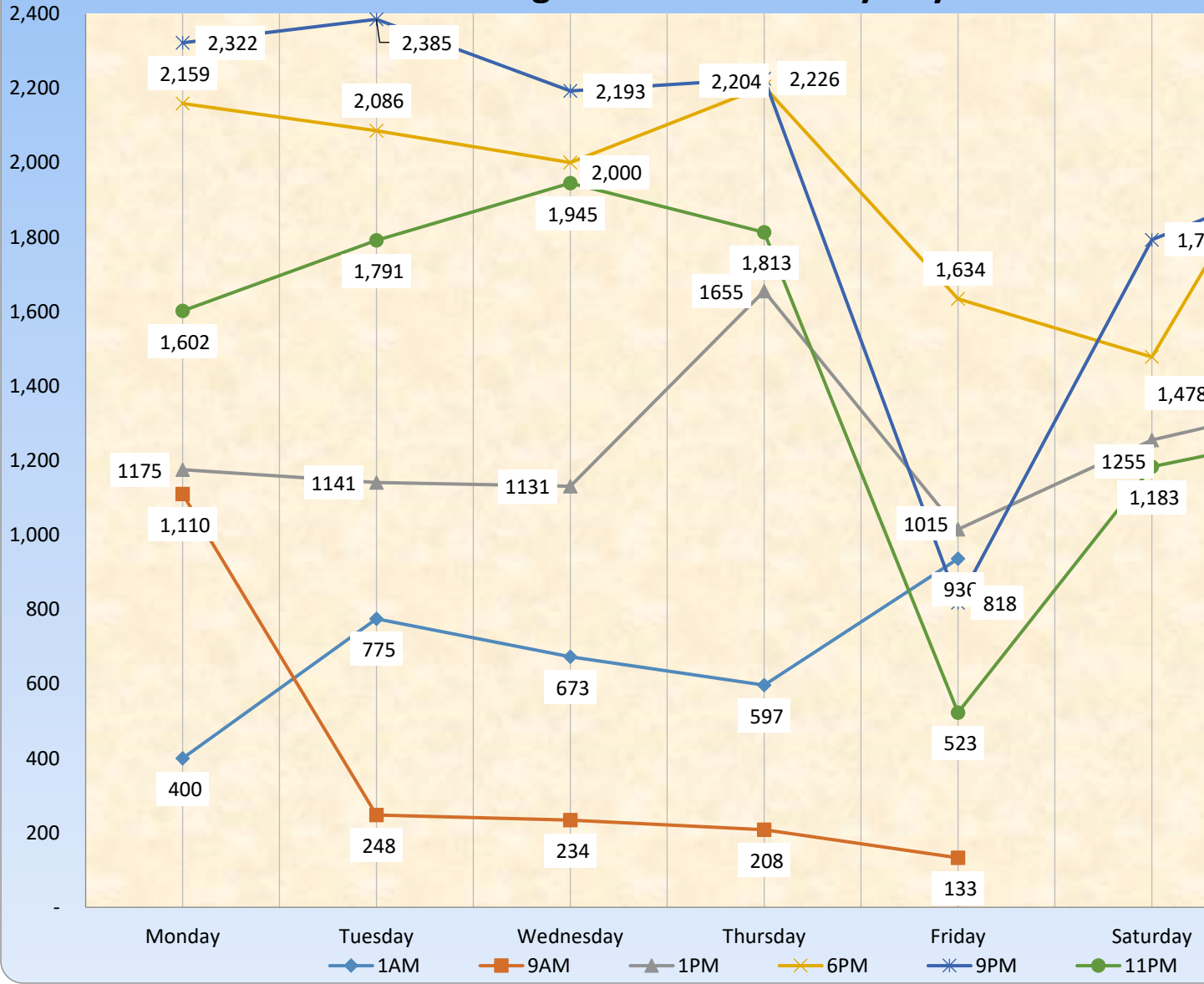
Fall 2021 Average Wi-Fi Count by Day and Time



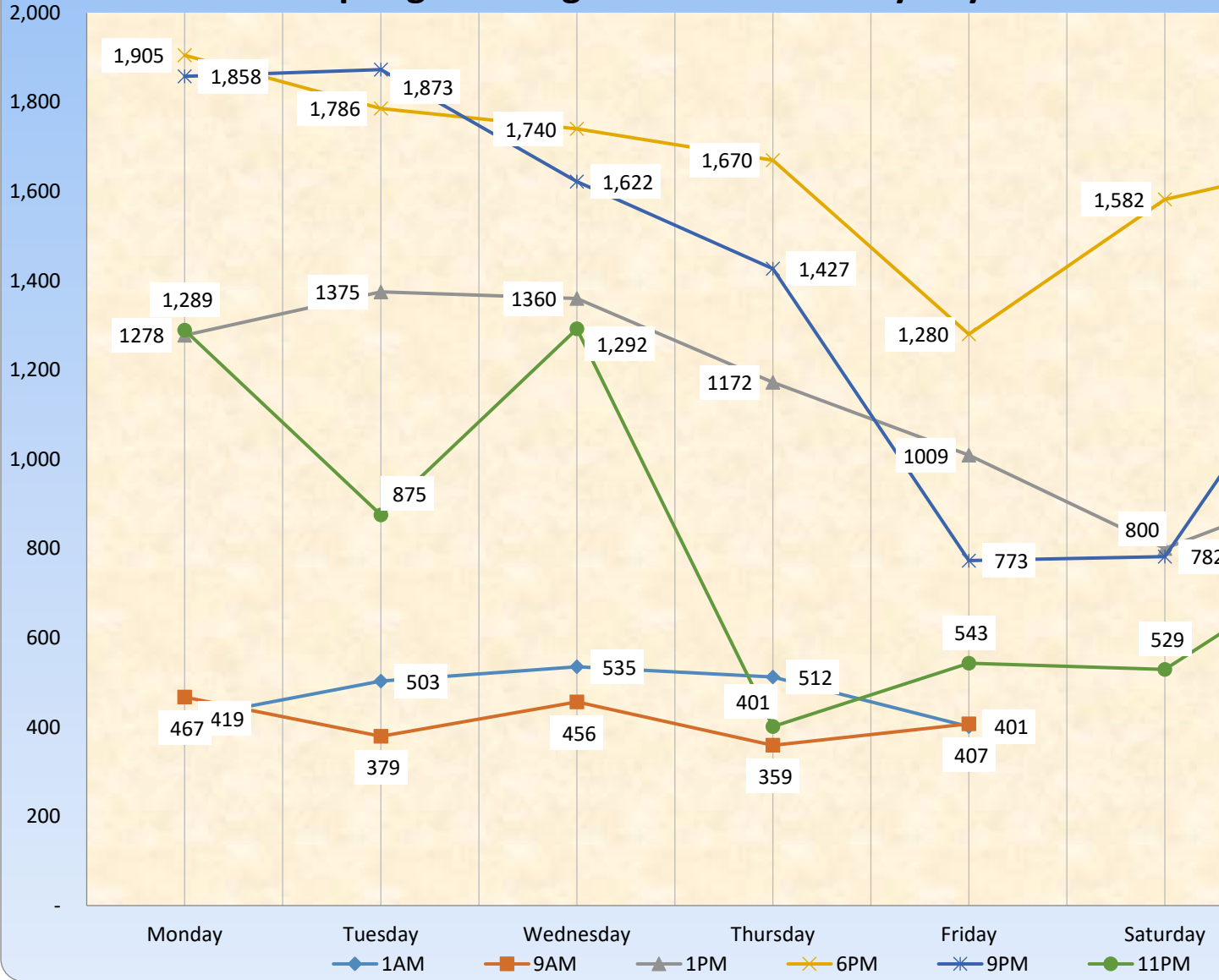
Spring 2022 Average Wi-Fi Count by Day and Time



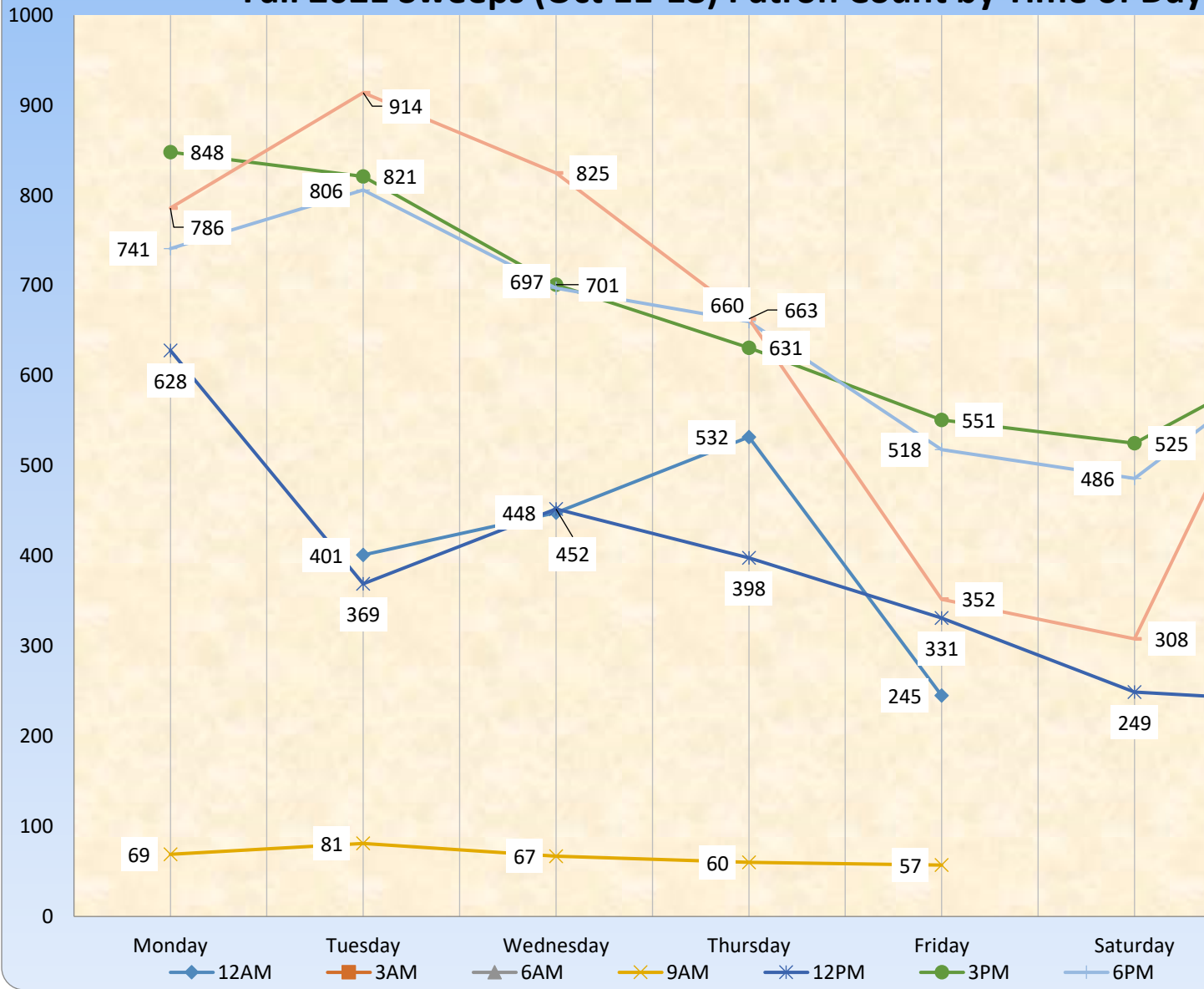
Fall 2021 Highest Wi-Fi Count by Day and Time



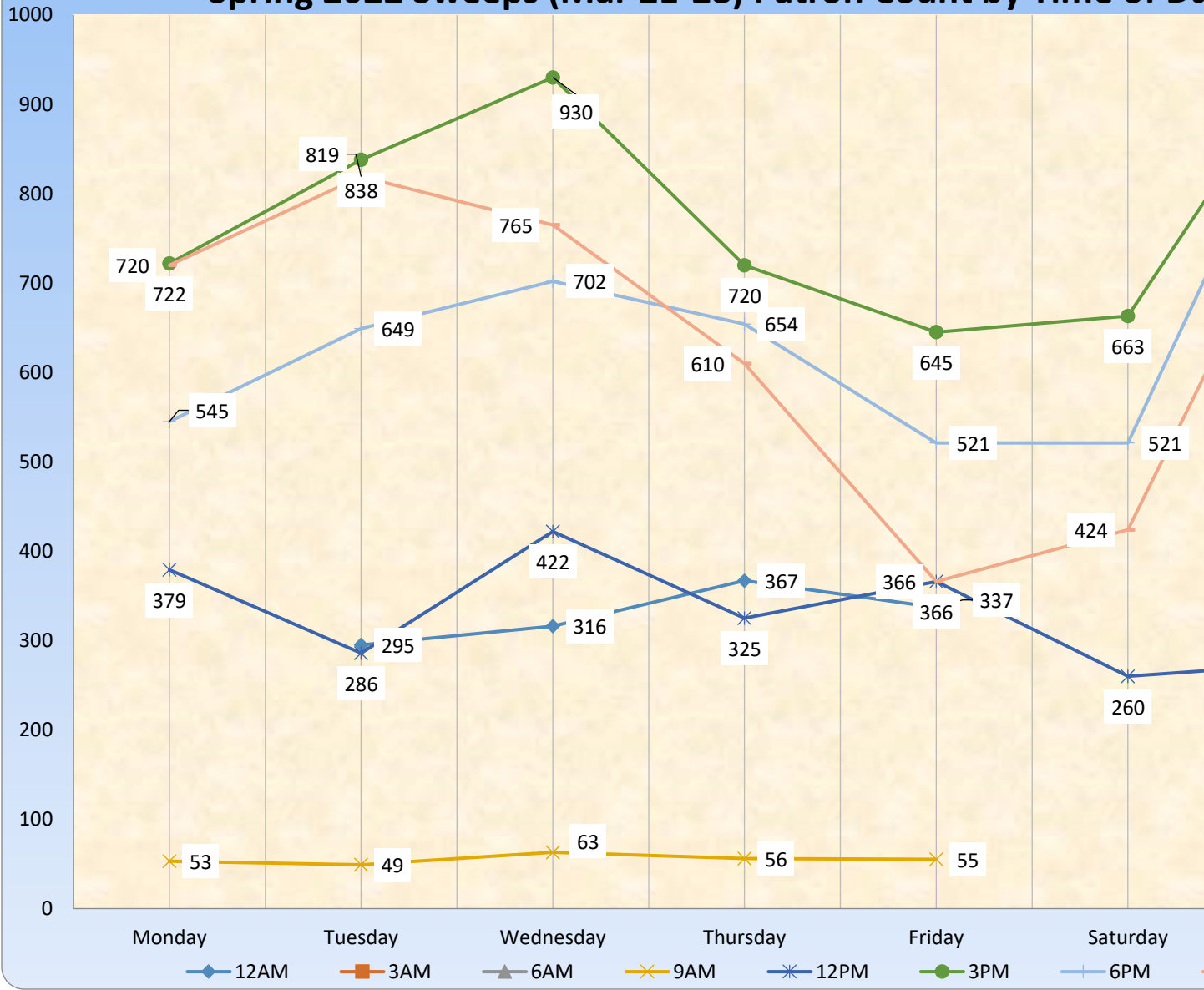
Spring 2022 Highest Wi-Fi Count by Day and Time



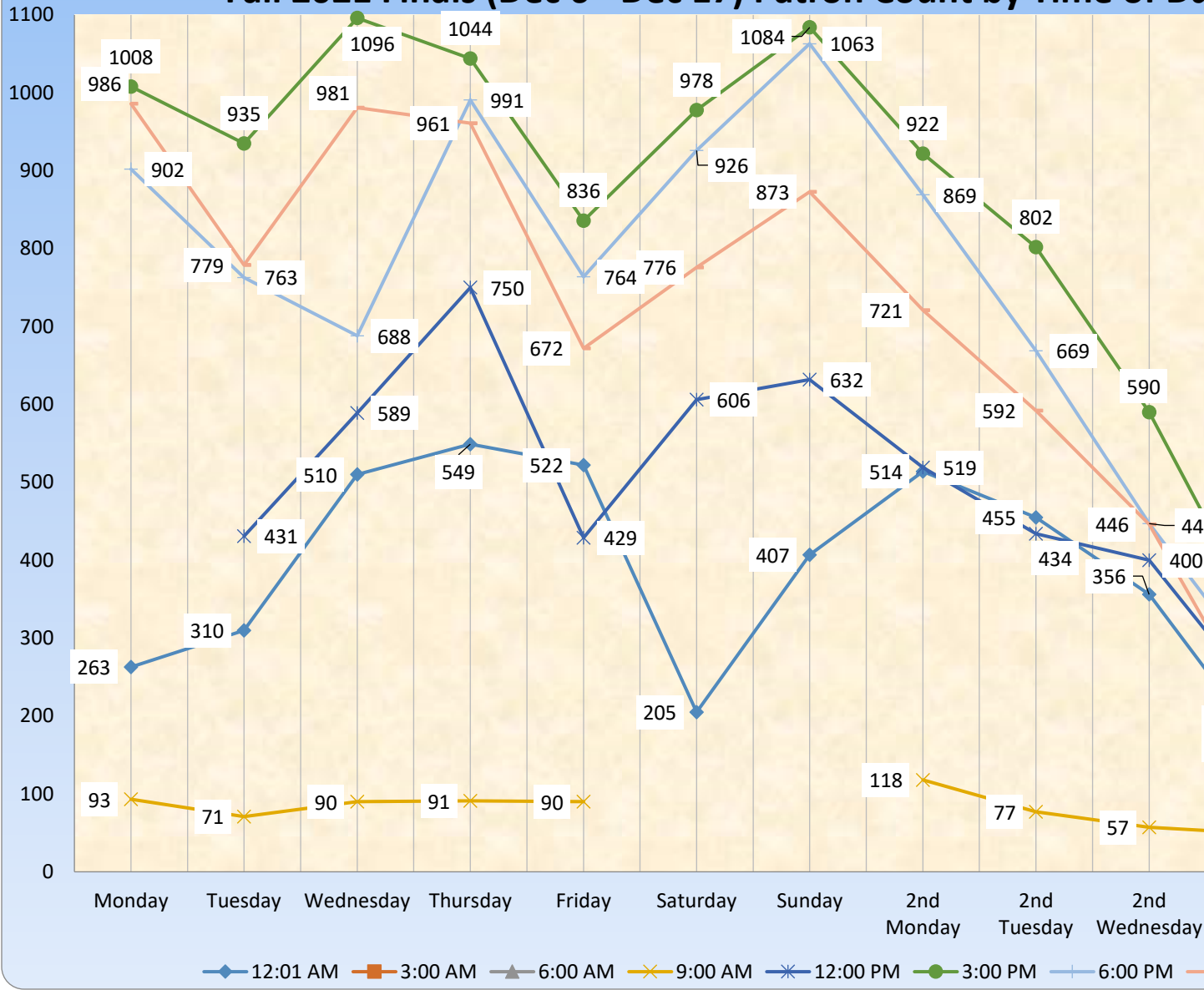
Fall 2021 Sweeps (Oct 11-18) Patron Count by Time of Day



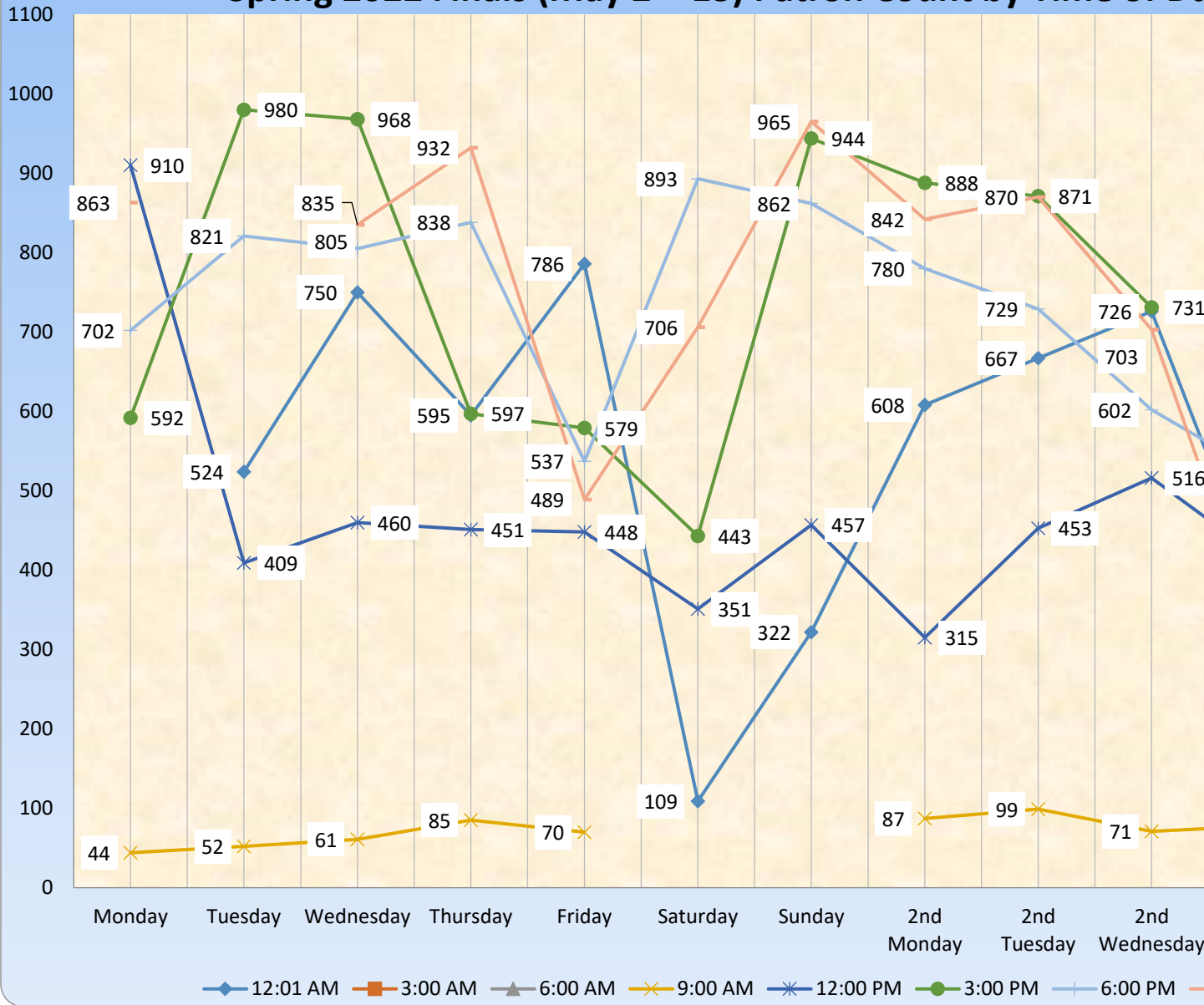
Spring 2022 Sweeps (Mar 21-28) Patron Count by Time of Day



Fall 2021 Finals (Dec 6 - Dec 17) Patron Count by Time of Day



Spring 2022 Finals (May 2 - 13) Patron Count by Time of Day



Gate Count Patron Visit Totals - Comparison Chart

