To: Dr. Clifton Sanders, Provost
From: Strategic Scheduling Collaborative Work Team
Date: December 20, 2019
Subject: Strategic Scheduling CWT Report

The CWT Charge and Background

Executive Cabinet charged the Strategic Scheduling Collaborative Work Team (CWT) with analyzing and maximizing scheduling effectiveness and enrollment for all SLCC sites through the following:

1. Establish scheduling guiding principles, policies and procedures including timelines for class schedule review by academic term, and timely decision making for schedule optimization and resource allocation;
2. Recommend improved scheduling technologies (if appropriate);
3. Identify and monitor measures for the effectiveness of the academic schedule;
4. Recommend adjustments; and
5. Provide general oversight of the scheduling process.

The Strategic Scheduling CWT grew out of the College Wide Scheduling committee. That committee met over the last two years to inquire into the challenges associated with building an effective class schedule. The Scheduling CWT met through fall semester to discuss scheduling challenges at SLCC and examine guiding principles, improved technologies, and specific recommendations.

This CWT follows up on an Ad Astra consultation from 2017. Ad Astra provided SLCC with a Higher Education Scheduling Index (or HESI) that gathered "key performance metrics and national averages to provide insight [SLCC's] resource allocation and opportunities for improvement."[1] Ad Astra found an imbalance in our course fill rates. They identified a "high level" of overloaded courses (courses filling above a 95% enrollment ratio) and a "moderately high percentage" of courses that were underutilized (<70% full). The first finding suggests that for key courses during peak times we are not meeting demand (most likely due to classroom/space constraints). And in the second instance we see that we are exceeding demand (harming our course fill and space utilization rates).[2] Overall, the report suggests that SLCC has room for improvement when it comes to building class schedules.

SLCC is not alone in confronting the challenges of strategic scheduling. Recent commentaries have pointed to scheduling as an area where colleges can improve their approaches.[3] And there are examples of colleges using strategic scheduling to both secure greater access for students and increase tuition revenue.[4] In this report, the committee lays out some of the challenges SLCC currently experiences when it comes to scheduling and then provides some recommendations, categorized according to the original charge.

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[1] "Strategic Scheduling Checkup." AD Astra Information Systems. March 2017.
[2] In addition, AD Astra found particularly low fill rates in single section courses. p. 7
[3] Steven Mintz, "Optimizing the Course Schedule," Inside Higher Ed. 28 October 2019.
[4] Colleen Flaherty, "Stephen F. Austin optimizes course schedule to add faculty lines that paid for themselves." Inside Higher Ed. 10 July 2018. (Note: Stephen F. Austin University engaged Ad Astra as a consultant to improve their approach to scheduling.)

Challenges

Space, time, and distribution challenges

Scheduling is first and foremost a challenge of assigning courses to rooms over time. Unfortunately, students do not conveniently sort themselves in evenly distributed clusters across the day. Instead, departments encounter peak times and slow times. During peak times, departments confront space constraints. As the Associate Dean of Mathematics reported to the committee chair, "I can always schedule another section of Math 1010 at 9am." During slack times, departments experience lower fill rates, and the College sees lower space utilization more generally. Salt Lake Community College sees a larger gap between peak and slack times due to its largely part-time, nontraditional student population. In sum, space, time, and distribution challenges include:

- Scheduling for multiple campuses.
- Scheduling during peak times are a problem.
- Scheduling enough high-demand classes. Not enough available during peak times.
- Building a schedule in advance so students can effectively plan. We don't have a long-term plan for our campuses and sites.
- Balancing general education and program courses.
- Balancing access and costs.

Student UX/technology challenges

Another area where SLCC could improve its approach to scheduling is the student experience. Banner fails to provide a user-friendly scheduling interface where a student can easily filter using multiple criteria (preferred days/times, distribution requirements, etc.) to build a schedule. Consider what our students experience in their everyday lives using Amazon, Netflix, or Spotify. They can easily search and filter for exactly what they want.[5] It's too difficult for a student to pick a schedule with our current technology. You can't filter enough on the front end; we ask students to click through too much.

In addition to the student experience, we're challenged to build an ideal schedule with our current technology. As it stands, a schedule is built by simply rolling over a semester in Banner. Our Fall 2020 schedule starts by copying over the schedule from Fall 2019. Even as we schedule in the first, our approach is always retrospective—and that is because our only reliable data exists in the past. How can we gather data that is more reliably predictive on student intentions so we can build a schedule that meets student need?

- There's no recommendation technology that might provide students available classes if their first choice is full.
- Do we have the data to really know what an ideal schedule is?
- Knowing what prevents students from taking the classes they want to take.
- We need a better class status report with more real-time data. Are we getting the real-time information we need to make decisions we need?

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[5] It's also useful to think about the Netflix example from the perspective of the College being a consumer of technologies like Banner. Imagine if Netflix offered a streaming service but didn't offer a useful way to search for its content. In this scenario, Netflix subscribers would be put in the position of having to pay another ten dollars a month to subscribe to a third-party service—let's call it Netflix Browser—which offered the ability to browse by genre. That is essentially the position now faced by SLCC as it considers adopting a service like College Scheduler.

Process and human resource challenges

Finally, scheduling isn't just a space-time problem or a technology challenge; it's also a human resource challenge. When we build a schedule, we need to find people to teach those classes. Associate Deans over high-enrollment gateway courses report that one of the key challenges in scheduling is scheduling for adjunct faculty: finding qualified instructors to teach is challenging. In addition, we still struggle as a college to establish consistent scheduling practices across schools and departments.

- Departments getting the schedule and subsequent edits into the scheduling office on time.
- Lack of coordination among departments for scheduling at smaller sites and across programs.
- Cancelling classes after students have registered for them.
- The varied approaches to scheduling across departments.
- Scheduling for adjuncts. Do departments have the adjunct faculty to teach the courses that have been scheduled?

Recommendations

Our scheduling practices should be informed by College Mission, Vision, and Values. A core theme that emerged in our conversations was the tension between scheduling for access and scheduling to ensure effective space utilization (cost and efficiency considerations). The Scheduling CWT comes down firmly on the side of access. Our mission *does not* read, "Salt Lake Community College will be a model for inclusive and transformative education, strengthening the communities we serve through efficient space utilization." While we must be responsive to USHE concerns over space utilization, this committee was charged with thinking about scheduling as a way of satisfying "student need." Scheduling is one important way the college realizes its mission of access.

It is worth considering the phrase "student need" in light of SLCC's transition toward a Pathways model. Pathways reminds us that student need is a product of what we tell students they need to take in order to complete a degree or certificate. Need is a construct of our own making, and pathways should hopefully assist us in producing a more rationalized student need, one that we can better predict because we're adopting a more directive approach at the outset.

Finally, the committee encourages the College to consider our adjunct model in the light of scheduling challenges. While there are a number of justifications for better adjunct compensation outside of scheduling considerations, the challenges of scheduling help underscore the reasons why a college is serving its own and the student interests in building a better model of adjunct compensation.

Guidelines and principles

These are the higher-order principles that should guide our approach to scheduling. They do not in and of themselves consistent specific recommendations, but we should keep them in mind as we move toward a more strategic approach to building course schedules.

- The schedule should prioritize student need (including online classes). Scheduling is about helping students get the classes they need to graduate.
- Pathways reform should assist the College in rationalizing scheduling. Instead of trying to predict student need, we are moving toward telling students what they need.
- Other industries use analytics to recommend things. Higher education should do the same.
- We need to provide a better student user experience.
- Strategic scheduling may require a different adjunct model—such as a tiered pay model—particularly for departments with many gateway courses.

Improved scheduling technologies

Providing a better student user experience should be a priority for scheduling. Currently, SLCC is the only college in the USHE system that isn't using an additional technology to assist students in building their class schedules. The scheduling CWT recommends that the Provost office and Student Affairs submit an informed budget request to support an RFP for scheduling technology.

- Adopt a technology (like College Scheduler or ScheduleMule)[6] which should assist students in building their schedule.
- Build a simple recommendation engine that would produce an email to students: "Here's a course schedule we think you would like."
- Analytical tools for Associate Deans, department coordinators, and scheduling staff.

Measures of scheduling effectiveness

As we move toward a more values-driven and rationalized approach to scheduling, we should also construct measures of our effectiveness. How do we know that our class schedules are meeting student need? We recommend adopting the following measures of scheduling effectiveness.

- Student satisfaction with course availability.
- Average credit hour load: are we witnessing a higher average credit load as a result of our changes?
- Higher percentage of credit load at single campus/site. Are more students able to construct an entire schedule at a single campus, or is our class schedule forcing them to travel between campuses?
- Add/drop rates. Are we having fewer people add and drop in the first days?
- Higher fill rates.
- Higher room utilization rates.
- Students take the same number of credit hours that they planned on in Degree Works.

Recommended adjustments

There are some short-to-medium term adjustments to scheduling worth considering. One implication of the AD Astra report is that the size of the college's entire course bank potentially hinders our ability to build a schedule that satisfies student need.

- Privilege gateway and general education courses during peak times.
- Analyze and prune courses with low fill rates that also have "low degree requirement impact."[7]
- Determine what our site missions are and scheduling accordingly, including our SLCC Online "location."

Oversight of the scheduling process

This report captures the committee's thinking at this moment in time. Scheduling is an ongoing challenge and requires successive iterations of analysis, recommendations, and adjustments. Following on the AD Astra report recommendation, we recommend that some version of this CWT become an ongoing committee that continues to study scheduling at SLCC. A bi-annual report with analysis and recommendations should be due every other fall.

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[6] These have not been vetted and the committee is not recommending we adopt them without further research. But we do believe the current student scheduling interface is lacking.

[7] "Strategic Scheduling Checkup," p. 6.