SCHEDULING PROJECT:

Improving UBC's Academic Course Scheduling Model

COMMUNITY KICKOFF

February 27th, 2019

Scheduling Services, Enrolment Services

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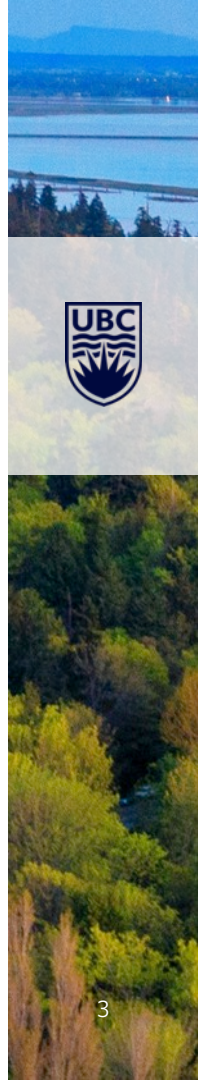
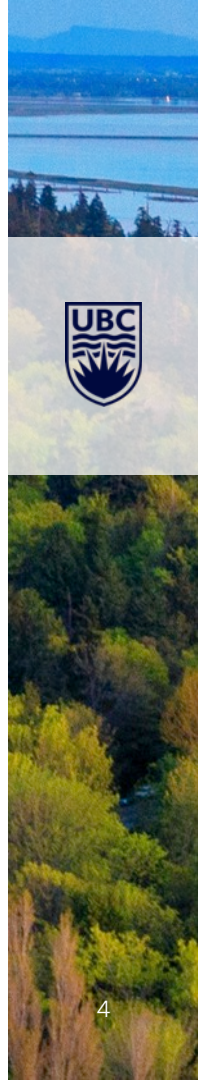
Agenda

1. Project Background
2. Key Drivers for Change
3. Identified Root Causes
4. Scheduling Model Goals & Objectives
5. Project Scope, Plan (high level summary of work), Approach
6. Governance & Team
7. Next steps (i.e. Consultations: requirements gathering)



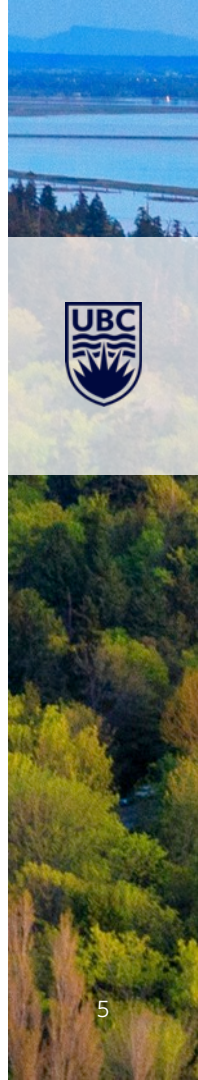
Project Background

- Current academic course scheduling model has been in existence for approximately ~20 yrs.
- 2014, the University renewed its scheduling system (i.e. Scientia) with limited review of the scheduling pattern or model and associated processes
- Post Scientia implementation, dissatisfaction experienced with new scheduling system and existing business processes (i.e. tier 1 and 2, "distributed model")
- February 2016, UBC engaged external consultant to conduct a review of its scheduling pattern which also included a review of scheduling processes, practices and related factors
- April 2016, consultant report shared with LSAC and stakeholders agreed it is time for change; however, there were concerns around getting an appropriately balanced model



AACRAO Recommendations

- “The two-tiered scheduling protocol is an inefficient and unnecessary… Should be eliminated and replaced by an automated process”
- “Course roll should be a shell comprised of only the relevant course information, with no meeting and location information provided.”
- “Set up scheduling zones across the campus that will assist in keeping students and faculty in classes that are in close enough proximity“
- “It is also recommended that centralized control of the classroom scheduling process should be assigned generally to Enrolment Services”



Best Practice Research

- Students are the central stakeholders in the timetabling system.
- Coordinating timetabling “from an institutional perspective rather than a particular academic area,”
- Creating “timetabling policy” to include requirements gathering, compilation and automatic scheduling, review, manual adjustment, publication, enrolment, and ongoing review.
- Target goals for distributing classes and events more evenly across the day and week and ensuring efficient classroom utilization, as well as guidelines for achieving these target goals.
- Flexible and User-Friendly Technology

Source: HRC, “Best Practices for Timetabling and Space Allocation Policies in Universities”

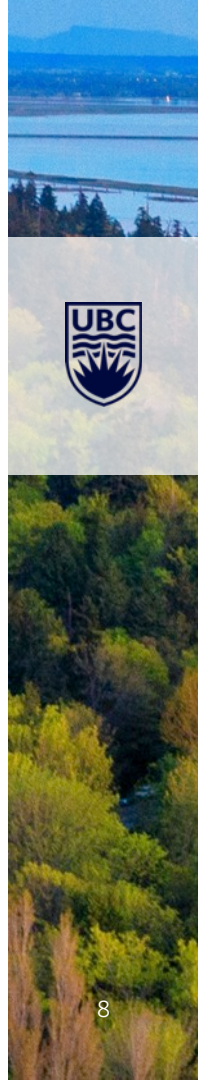
KEY DRIVERS

- Student success
- Data integrity
- Effective Use & Optimization of Resources
- User experience

Key Drivers for Change: Student Success

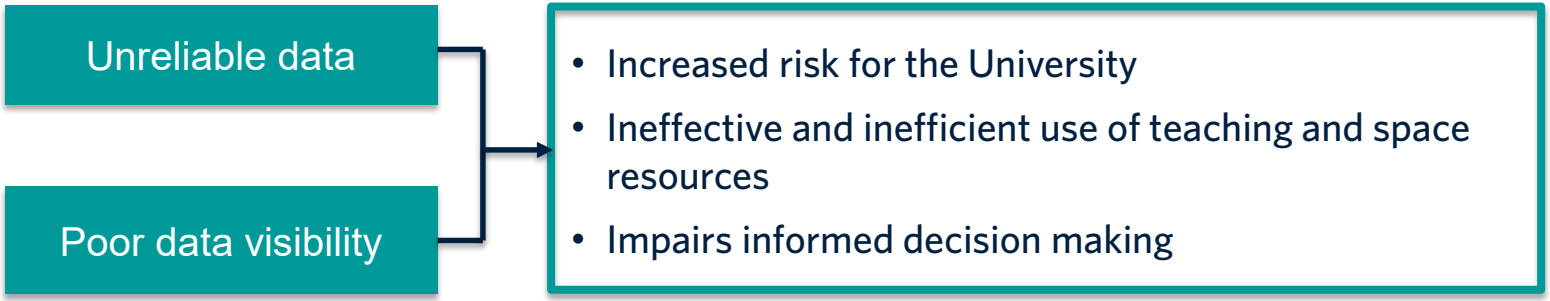
- In 2015, 76% of students consider ***"scheduling conflicts with other required courses"*** a barrier when registering for the required courses within their program. (1)

- In 2018, 58% of students in a 4-year degree program (60% in 2015) expect to take more than 4 years to complete their degree and 18% (21% in 2015) of those students say that being "***unable to take required courses when I needed to"*** prolongs their degree.(1)



(1) Academic Experience Survey Report – AMS – 2015 and 2018
(2) T-Rep Survey conducted October 2017, with a participation rate of 35%

Key Drivers for Change: Data integrity



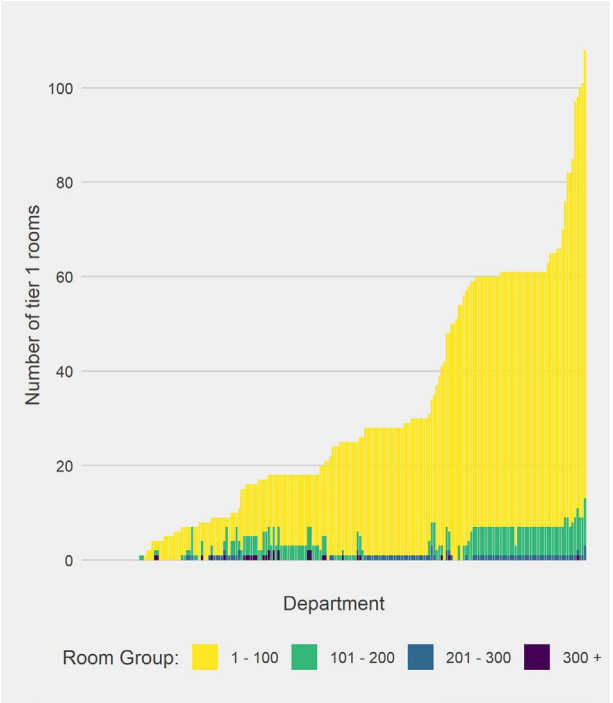
- 18% of T-Reps report spending **at least 6 hours per week** resolving scheduling related issues and data entry errors.(1)

(1) T-Rep Survey conducted October 2017, with a participation rate of 35%

Key Drivers for Change: Effective Use

Tier access as of 2018W

- Most Tier 1 access is provisioned at the building level resulting in inefficient and imbalanced access
    - Majority of Tier 1 access is for smaller room sizes
    - Only a few Departments have access to buildings with larger (i.e. 150+) classrooms
    - Departments' tier 1 access varies between 0 to 108 GTS rooms
- 41% of T-Reps state that they are **either never or only sometimes** able to book a room that meets the required pedagogical attributes of the course. (1)



2018W Tier Access to GTS

Data from 2018W Academic Course Scheduling Report Draft

(1) T-Rep Survey conducted October 2017, with a participation rate of 35%

Key Drivers for Change: Optimize Resources

Room utilization in 2018W GTS

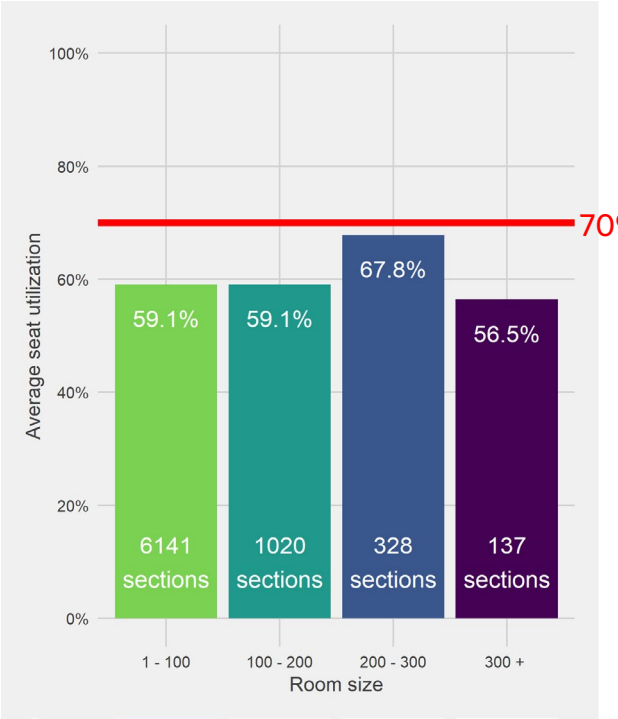
- Facilities Planning, Council of Ontario Universities suggests a room utilization rate of 70%.
- Campus wide room utilization is ~54%.
- Rooms over 100 seats are over 70% room utilization.
- During prime time:
    - GTS rooms over 50 seats are over 85% utilization
    - GTS rooms over 150 are at 100% utilization

2018W GTS Room Utilization

* Room counts are for those in use in the 2018W timetable

Data from 2018W Academic Course Scheduling Report Draft

Key Drivers for Change: Optimize Resources



2018W GTS Seat Utilization

Seat utilization in 2018W GTS

- Sections of all sizes are under the 70% seat utilization target rate.
- Only 46% of course sections in GTS rooms met the 70% target seat utilization rate.
- Campus wide seat utilization rate is 61%.

* A section may have more than one seat utilization if in multiple rooms.

Data from 2018W Academic Course Scheduling Report Draft

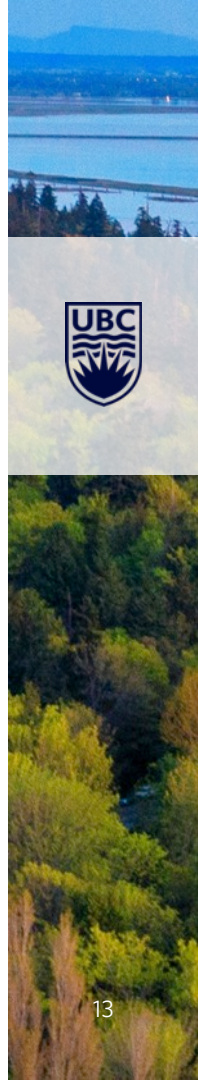
Key Drivers for Change: User experience

- 61% of T-Reps report that they are either **very dissatisfied** or **somewhat dissatisfied** with **at least one** aspect of the current scheduling system or process. (1)
  - 43% of T-Reps are dissatisfied with the current system performance,
  - 31% are dissatisfied with the current scheduling pattern and
  - 20% are dissatisfied with the current two-tier model.

- Despite prior efforts to improve the system, only 32% of T-Reps experienced a positive change in their level of satisfaction with the system performance, while 62% experienced no change and 6% experienced a negative change.(1)

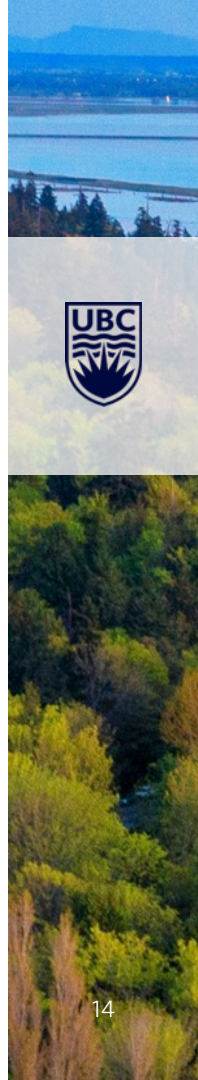
- **There is an uneven distribution on the weekday commuting trips by hour of the day, generating problematic peak periods.** (2)

(1) T-Rep Survey conducted October 2017, with a participation rate of 35%
(2) Based on UBC's Vancouver Transportation Status Report (2017)



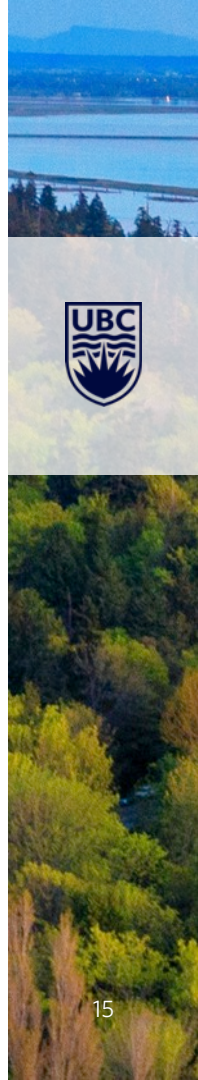
Identified Root Causes

1. A decentralized academic course scheduling model
    a. Limited coordination between departments and faculties when developing their course schedule
    b. 160+ T-reps scheduling directly in the system is inefficient
    c. T-reps are not entering scheduling requirements (i.e. program, instructor, etc.) into Scientia
2. Not leveraging the available scheduling functionality in Scientia to support us in producing an optimized and conflict free schedule
3. Lack of adherence to the Academic Course Scheduling Guidelines
4. Course scheduling is driven primarily by instructor preferences and availability resulting in an uneven distribution of course meeting times
7. Lack of controls and validations regarding scheduling parameters and requirements (eg. seat capacity, AV etc.)
8. Unfavourable room agreements



Scheduling Model Goals & Objectives

Goals	Objectives
Facilitate student success	• Mitigate student schedule conflicts allowing for increased availability of courses required for graduation.
Support excellence in transformative teaching and learning	• Support the pedagogical needs of various courses and programs, which vary across disciplines. • Provide scheduling stakeholders with flexibility and adaptability for innovation and change.
Achieve agility and ease in administration and user experience	• Simplify, streamline and align scheduling practices and processes. • Leverage functionality in existing scheduling software (i.e. Scientia) to gain efficiencies in human resources, business processes and teaching space resources.
Ensure effective and optimal use of the institution's teaching space resources	• Ensure appropriate allocation of space based on teaching requirements and increase utilization of teaching spaces.
Ensure reliable, integrated and accessible data that enables informed strategic decisions	• Improve access and capture of accurate scheduling data to support more informed strategic decision making.



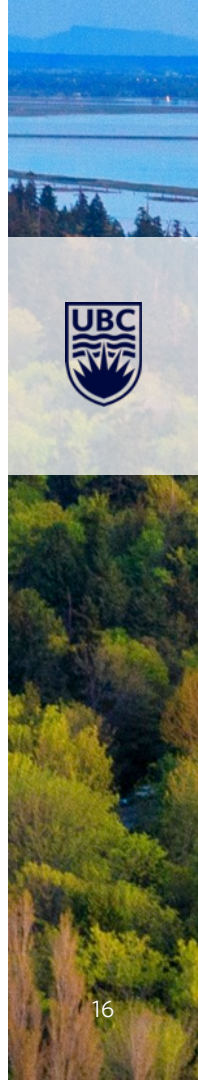
Project Scope

In Scope

- UBC Vancouver's Academic Course Scheduling Model
    - Academic Course Scheduling Guidelines (undergraduate vs. graduate)
    - scheduling pattern
    - academic course scheduling practices, processes, policies
        - Thursday Block
    - assignment of scheduling functions and responsibilities
    - Scheduling Services staffing requirements
    - inventory and utilization of general teaching space (GTS) and restricted teaching space (RTS)
    - room agreements
    - Use of scheduling technology - Scientia functionality (i.e. Web Data Collector, EAA) and resolution of system issues

Out of Scope

- change of scheduling technology (i.e. Scientia)
- academic course exam scheduling



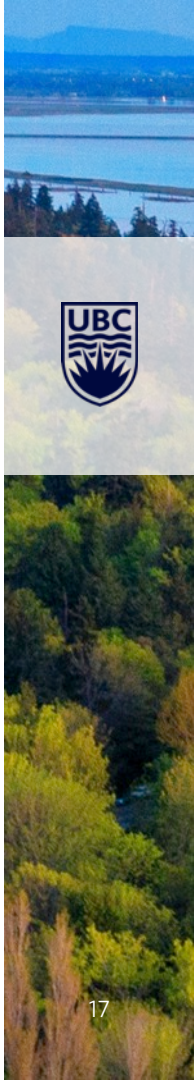
Project Plan: Phase 1

Phase 1

Expected Outputs

Sep '18	Mar '19	Sep '19 – Jun '20
Analysis	**Consultation**	**Simulation & Evaluation**
• Project Team/Governance • Project scope approval from sponsors • Department/ Institution level current state analysis • Development of data requirements gathering tool	• Project kick off with University Stakeholders • Data/requirements gathering from departments/faculties • Report and recommend on requirements and constraints resulting from data analysis • Identify system fixes/solutions • Identify simulation options	• Perform scheduling simulations • Report/Consult with steering committee on simulation findings • Consultation and evaluation of models • Recommend new pattern and model for sponsor approval • Development and approval of new Scheduling Guidelines

Improved Scheduling Model
Updated Academic Course Scheduling Guidelines



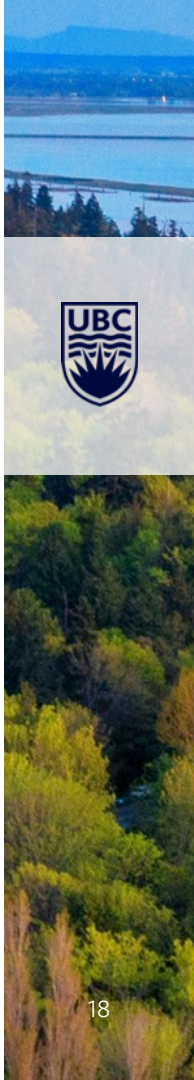
Project Plan: Phase 2

Phase 2

Expected Outputs

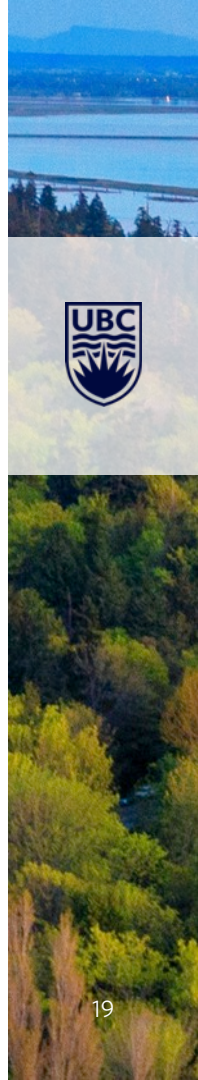
TBD	TBD	TBD
Implementation	**Sustainment**	
• Present/Socialize new scheduling pattern and model to University community • Development of new business process documentation • Training for staff and faculty stakeholders • Scientia production environment set up • Go Live	• Continued training and support • Monitor and measure • Develop continuous improvement plans	

Improved Scheduling Model
Updated Academic Course Scheduling Guidelines

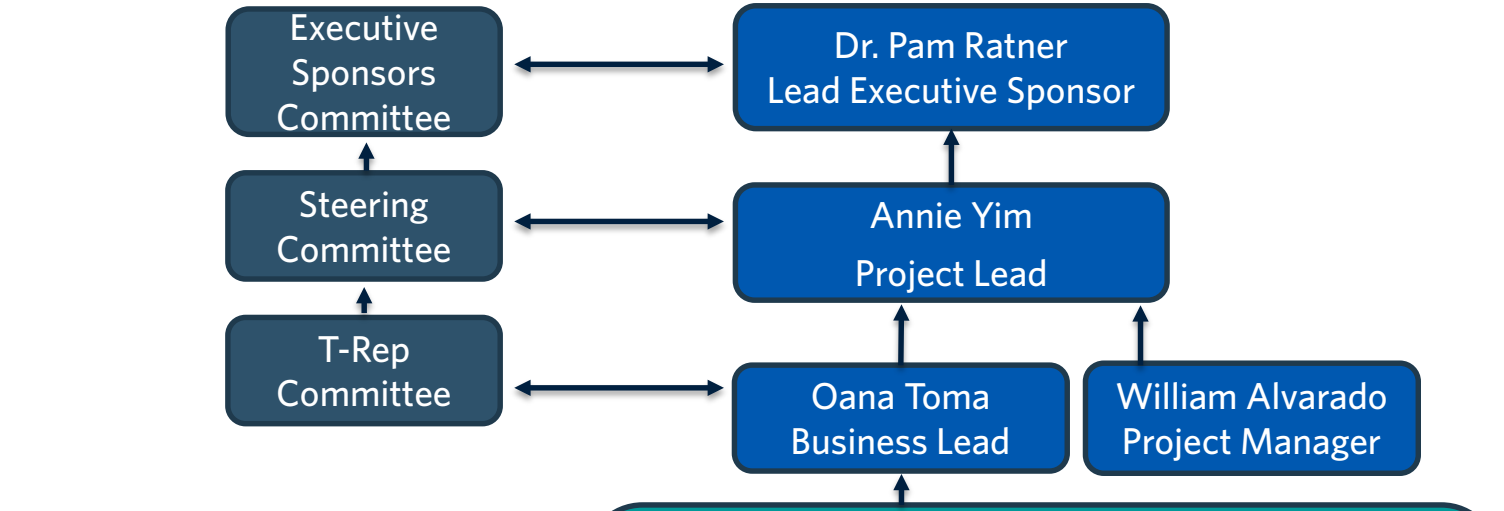


Project Approach: Simulate & Evaluate

- Take a holistic and innovative approach when reviewing the scheduling model and determining solutions
- Take a consultative and iterative approach to the development and evaluation of the scheduling model
- Ensure collaborative stakeholder engagement
- Develop comprehensive solutions that are adaptable and scalable for future requirements
- Ensure that success is defined and measurable
- Ensure alignment with IRP
- Build off and leverage work and insights generated from other activities/undertakings
- Obtain appropriate sponsorship to support the culture shift and change management required



Governance & Team



Collaborators/Advisory

- LSAC
- SABNC

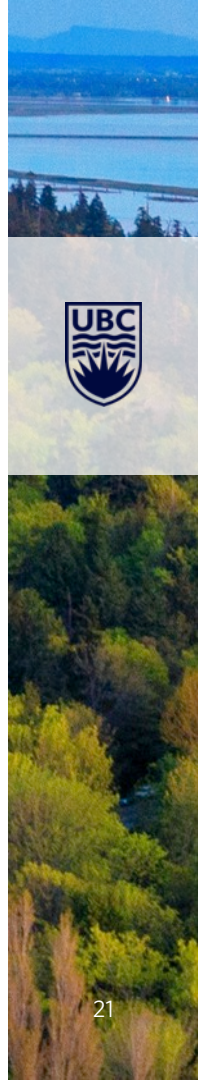
Project Team

- Sahir Moosvi, Business Data Analyst
- Victoria Lui, Scheduling Analyst
- Jane Young, Scheduling Analyst
- Hannah Diopenes, Scheduling Asst. (student)
- TBD, Change Management & Communications
- Centre for Operations Excellence, Sauder

Next Steps

1. Formulation of Steering Committee
2. Consultations: Requirements Gathering
3. Continued engagement: Coming Soon - Scheduling Project Webpage

   https://facultystaff.students.ubc.ca/enrolment-services/scheduling-records-systems-management/scheduling-services/scheduling-project



SPONSOR REMARKS

Q & A

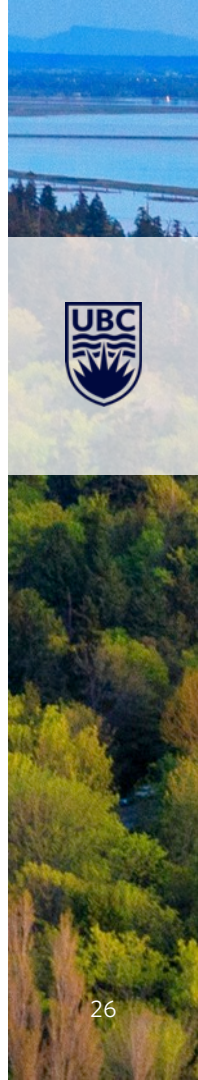
THANK YOU

Contact Us: scheduling.projects@ubc.ca

APPENDIX

LSAC – Scheduling Principles

Governance	✓	○	✗	LSAC Principle
Instructional space is a valuable resource that belongs to the University as a whole and will be allocated and shared to support the broader teaching and learning needs of students as well as other University activities.	5	5		
The Provost is the steward of instructional space and is responsible for ensuring that this space supports the academic needs of the University.	9	1		
The Office of the Registrar is authorized to schedule classes and final exams in any available general purpose classroom to accommodate the broader academic needs of campus.	5(6?)	4	1	
Timetabling is a jointly managed process, with teaching staff determining the appropriate mode of delivery and the resources needed for their teaching, and Scheduling Services, in conjunction with Faculty/Department timetable coordinators, determining how best to meet these needs within the constraints imposed by available resources and the need to minimize clashes.	11			
Health and Wellness	✓	○	✗	LSAC Principle
Consider the work-life balance of all UBC community members: students, faculty and staff.	8	3		To the extent possible, scheduling should be accessible (available) to the widest number (largest group) of people, with accommodation for those with needs.
Instructors should be able to obtain schedules that permit them to integrate their professional duties of teaching, research and service in a reasonable way.	10	1		
Persons with disabilities will be accommodated with regard to course scheduling up to the point of undue hardship for the University.	7	4		
Pedagogy	✓	○	✗	LSAC Principle
Pedagogy as a driver: The class schedule should be designed to meet the pedagogical needs of courses and programs, which vary across disciplines.	8	2		Pedagogy (students' learning goals, pedagogical architecture) is the driver of scheduling of type of space: when (duration – frequency, days of week) and location (infrastructure, precincts).
To the extent possible, the pedagogical needs of a course should determine the type of room assigned.	7	4		
The University's timetable supports the delivery of high-quality teaching, enabling students to learn effectively and complete the requirements of a course within the normal duration in accordance with the course rules.	10	1		



LSAC – Scheduling Principles (cont'd)

Student-focused	✓	○	✗	LSAC Principle
The class schedule is one important means by which students' academic experiences should be optimized, including ensuring that courses required for graduation are available and accessible.	10			Class schedules should offer choice where possible and contribute positively to student experience; Give students control over their experience. Core courses should be accessible to students in cohort-based programs. Set students up for success. Consideration should be made for commuter students.
Classes should be scheduled to allow students as much choice as possible and to avoid as many course conflicts as possible.	8	3		
To the extent to which it is possible, the timetable should facilitate the widest range of program and course selection for all students.	3(4?)	6(7?)		
Effective Use	✓	○	✗	LSAC Principle
All general purpose classrooms need to be shared to support the broader teaching and learning needs of the University.	5	2	3	To optimize classroom usage all general purpose classrooms are shared to support the ~~broader~~ teaching and learning needs of the university with consideration for diverse program needs.
The timetable will provide a designated amount of time to move between classes.	11			
Teaching activities will be scheduled at times and in places that are consistent with utilizing teaching space and resources effectively and efficiently.	3	8		
Optimize classroom usage throughout the instructional day and week.	3	7		

Principles for Booking GTS

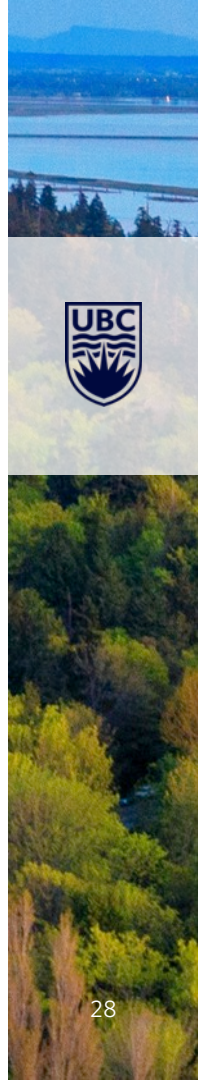
Universal Resource: General teaching space belongs to the University as a whole and will be allocated in a transparent manner.

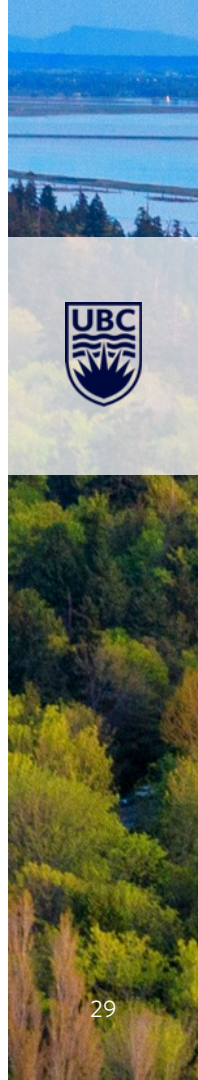
Alignment to UBC Strategic Priorities: Allocation of general teaching space will favor activities that directly align with the University's strategic priorities.

Effective Use: General teaching space will be allocated based on the requirements of the activity such as pedagogy, room amenities and location to enhance the learners' experience and to support achievement of the activity's objectives.

Optimization: General teaching space will be allocated in a manner that aims to utilize the space(s) to its fullest capacity.

Collaboration and Flexibility: Scheduling Services, faculties, departments, and schools will work together in a collaborative and flexible manner to effectively optimize usage of general teaching space.



Project Roles and Responsibilities

Role	Responsibilities
Executive Sponsors Committee	• Provides direction and makes decisions to achieve project vision and objectives • Approves deliverables • Allocates resources • Approves changes to scope • Ensures resolution of issues escalated by Project Lead
Steering Committee	• Primary governing body and decision making group • Validates deliverables • Ensures key stakeholder groups are well represented • Acts as change champions to drive, communicate and support change
Project Lead	• Business driver and key champion of the project • Supports high-level project planning • Helps to resolve conflicts and remove obstacles • Reports to and receives direction from Executive Sponsors • Ensures availability of business resources
Project Manager	• Develops detailed project plan • Manages project budget, deliverables and timelines
Business Lead	• Leads the execution of the project plan • Manages project team members
Project Delivery Team	• Delivers the implementation of the project