BATCH REGISTRATION DASHBOARD

Dashboard Description & Purpose

The goal of the batch registration dashboard is to provide departments and college units the ability to examine a high level visualization of the daily simulations from the UniTime batch registration solver combined with student and course information that is widely shared across campus. This differs from the Online Student Scheduling Dashboard available directly from UniTime. First, in most views, the data has been aggregated in a way that will allow a user to evaluate the schedule health of a population and how that changes throughout the pre-registration cycle through Fall census. Second, this dashboard allows users to identify specific populations of students based on their selected plan of study and whether they are new beginners, transfers or another type of new student. Conversely, the Online Student Scheduling Dashboard is intended for administrators, scheduling deputies and student advisors, as it gets into a much finer level of detail and is more closely aligned with operational purposes.

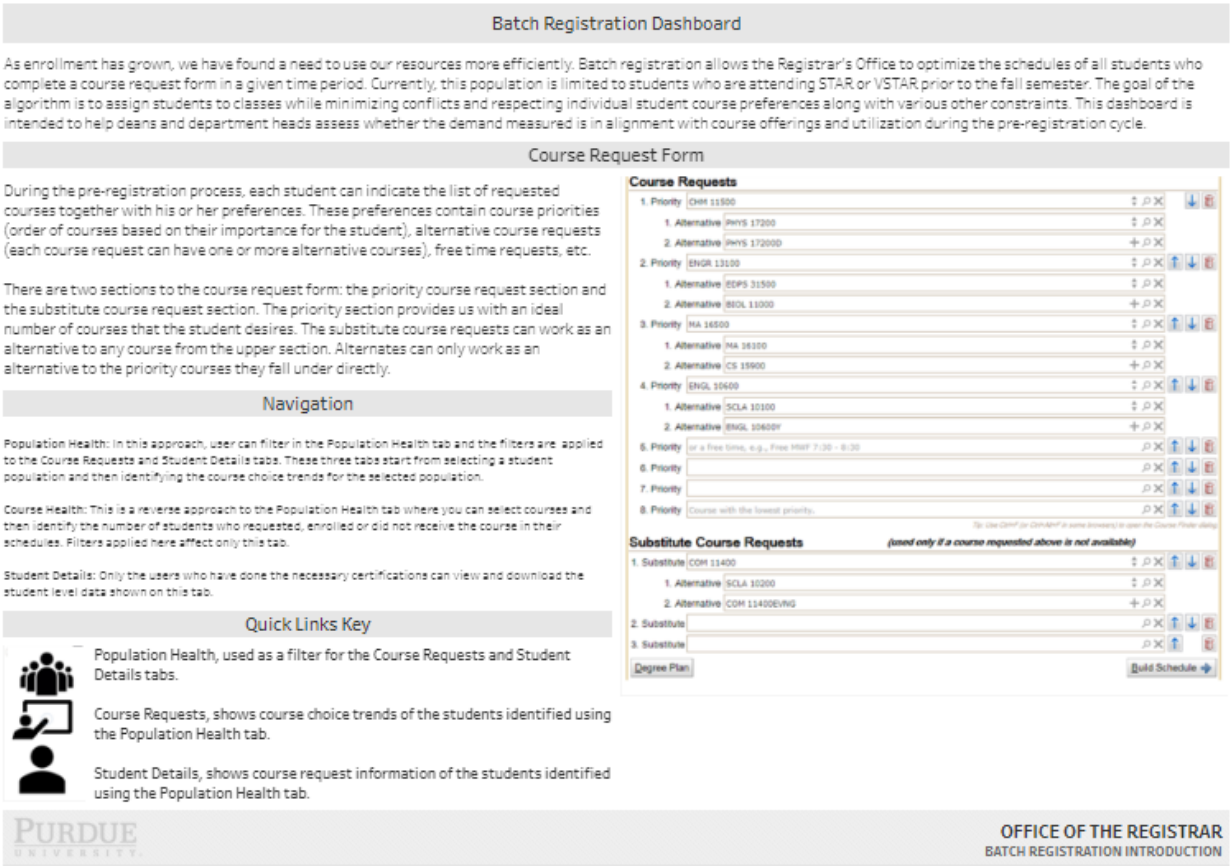
The batch registration dashboard will be accessible to users during this pilot stage from the Registrar's Pre-Registration page under the heading "Dashboards" (https://www.purdue.edu/registrar/faculty/advisors/pre-registration.html). The dashboard will be refreshed on a daily basis from the beginning of STAR (mid-June) through batch day (mid-July). After students are batched in, the dashboard will be updated with actual registration weekly (Mondays) through Fall Census in early September in order to monitor student schedules after they are given the ability to make changes to their own schedules. See the Pre-Registration Timeline for more information: https://www.purdue.edu/registrar/faculty/advisors/timeline.html.

It is important to note the goals of the batch registration solver (simulation and actual batch registration generating algorithm) when viewing this dashboard. As enrollment has grown, we have found a need to use our resources more efficiently. Batch registration allows us to optimize the schedules of all students who complete a course request form (see appendix A) in a given time period. Currently, this population is limited to students who are attending STAR or VSTAR prior to the fall semester. The goal of the solver is to assign students to classes in order to minimize conflicts while respecting individual student course requests and preferences along with various other constraints. This dashboard is intended to help deans and department heads assess whether the demand measured is in alignment with course offerings and utilization during the pre-registration cycle.

Dashboard Tab Functions

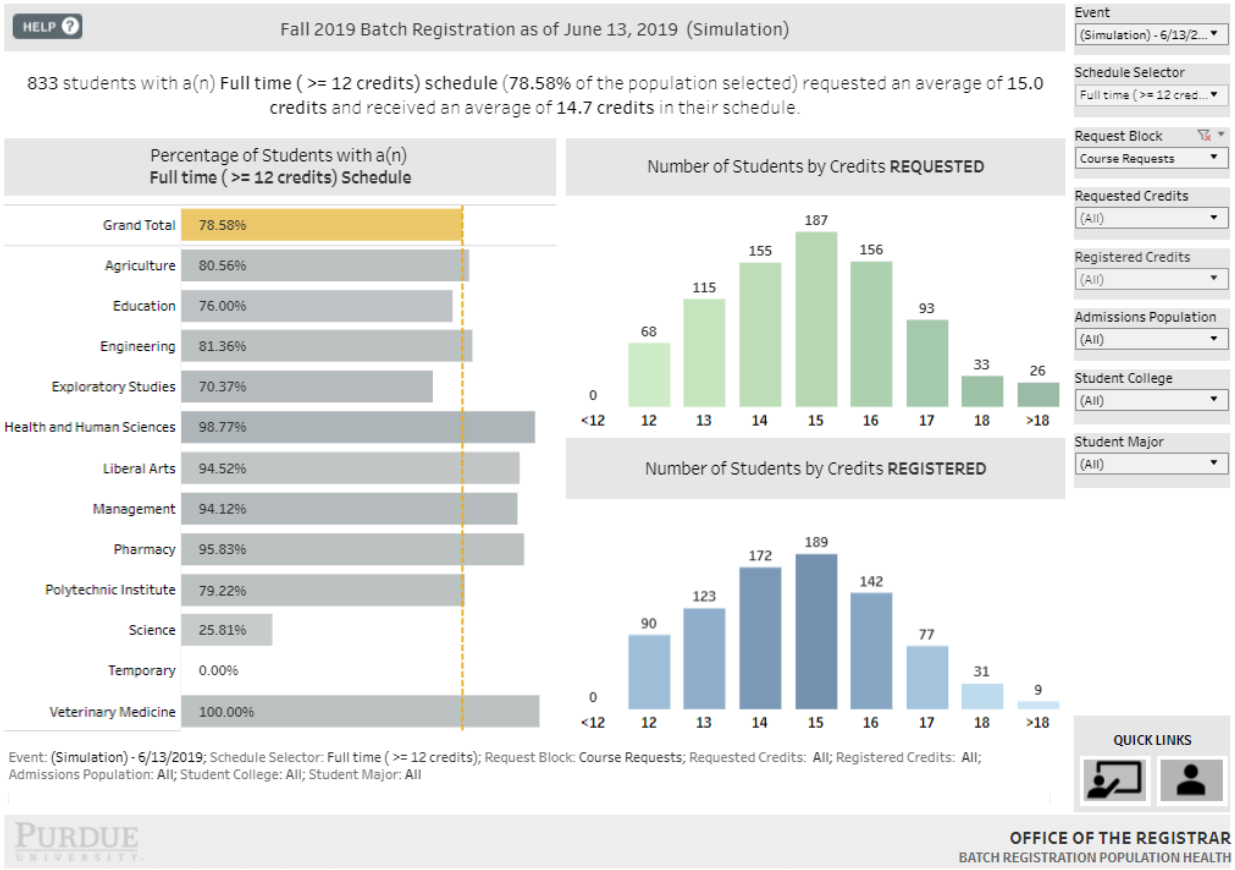
INTRODUCTION

Purpose: Provide a brief introduction to the purpose of the dashboard, the topic of the course request form and the ways to navigate the dashboard.



POPULATION HEALTH

Purpose: Identify population health as it relates to the type of schedule and number of credits a student from a given college/major or admit type has in their simulated or actual schedule. This page is also used to filter the Course and Student tabs showing the student's choices and alternates at varying levels of detail. Tooltips display information in sentence format to aid end users in interpretation of the data presented.



Filters

1. **Event:** shows whether the data provided is a simulation or actual registration dataset and the date that the data was loaded to the dashboard. For simulations, this is in line with the date that the simulation run ended. For actuals, data is from the previous night's load. The latest event (latest date) will appear here by default.
2. **Schedule Selector**: This filter will determine the population of students being examined.
   a. Full time schedule: a schedule containing 12 or more credit hours as shown here, https://www.purdue.edu/registrar/currentStudents/students/index.html.
   b. Part time schedule: a schedule containing less than 12 credit hours.
   c. Complete schedule: a schedule that includes at least one of the requested courses from each request grouping from the top portion of the course request form.
   d. Incomplete schedule: a schedule that does not include at least one of the requested courses (or provided alternates) from the top portion of the course request form.

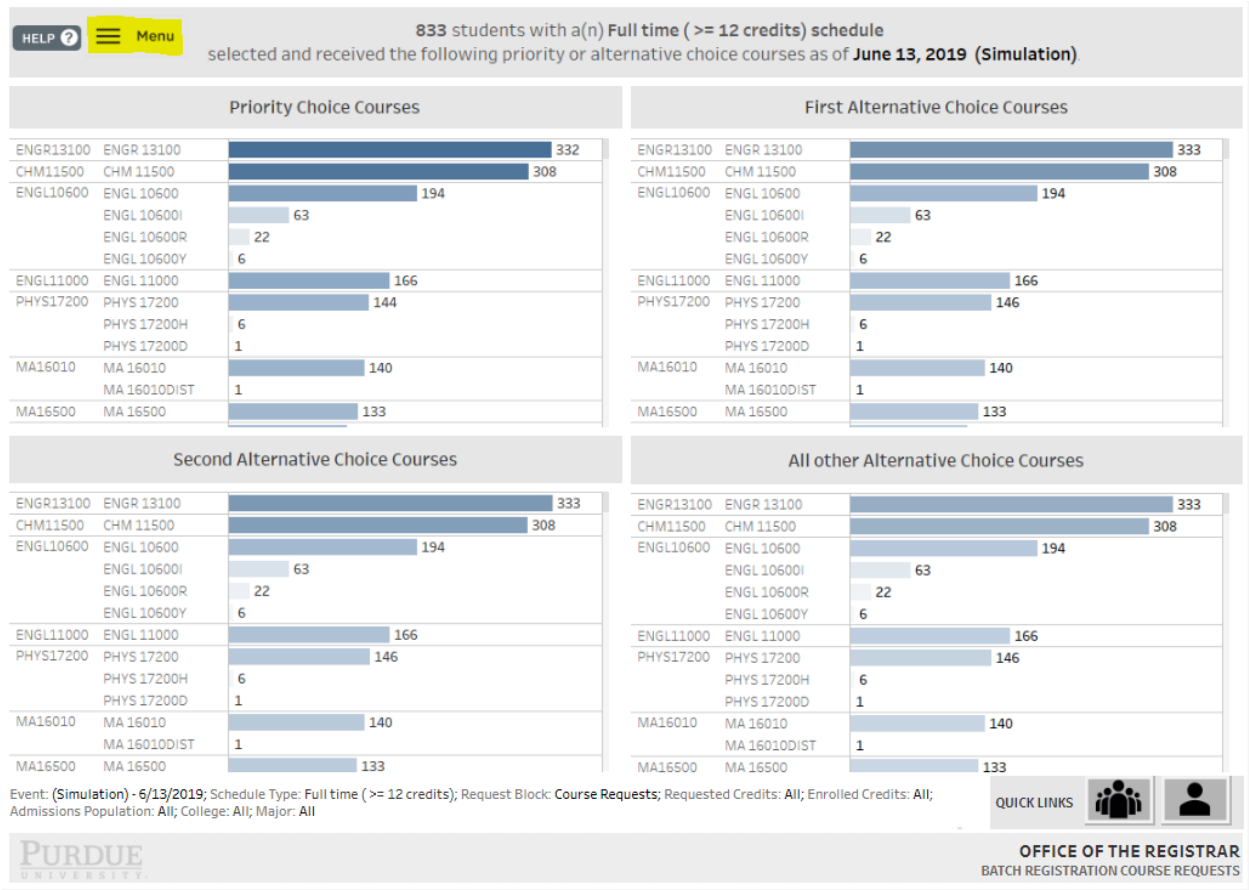
3. **Request Block:** This allows the user to select only the upper or lower portion of the course request form. This is most helpful when there is interest in viewing the number of credits requested vs. enrolled.
    a. Course Requests: upper section of the form
    b. Substitute Requests: lower section of the form
4. **Requested Credits:** number of credits a student requested in their course request form.
5. **Registered Credits:** number of credits in a student's schedule (simulated or actual).
6. **Admissions Population:** allows the user to identify new beginners vs. other populations of incoming students.
7. **Student College:** allows the user to identify a specific college
8. **Student Major:** allows the user to identify a specific major

Questions to answer with this tab

1. In a given simulation or after batch day through census freeze, how many students by college, major and/or admissions population were able to get a…
    a. …complete schedule?
    b. …incomplete schedule?
    c. …full time schedule?
    d. …part time schedule?
    e. …any of the above schedules with a particular number of requested credit hours?
    f. …any of the above schedules with a particular number of enrolled credit hours?
2. At a high level, what did batch registration simulated schedules look like compared to actual enrollment on the first day of classes or on census day?
3. Was pre-registration successful at delivering new beginners from all colleges an appropriate number of credit hours?

COURSE REQUESTS

Purpose: Displays the top course choices for a given population (selected on the first tab). The collapsible menu on the left allows users to gain contextual knowledge about space remaining in a given course irrespective of the population filters selected on the Population Health tab. This tab will also show the top course choices that were missing from a student's schedule if the Incomplete schedule is selected on the Population Health tab. Tooltips display information in sentence format to aid end users in interpretation of the data presented.



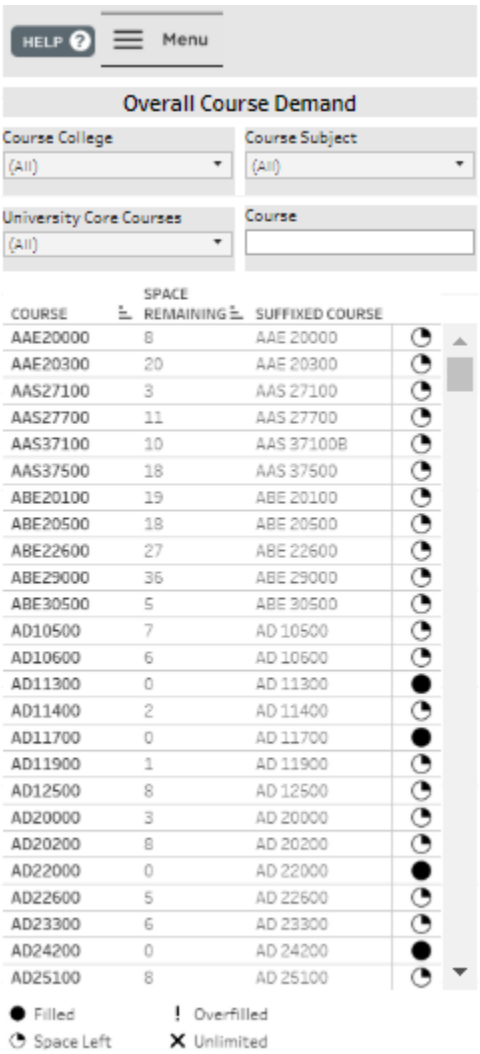
Filters

These filters only apply to the collapsible menu that shows the amount of space that remains in a course as of the simulation event selected on the first tab.

1. **Course College**: the college that offers a course
2. **Course Subject:** a three or four letter code and description indicating the broad subject matter of a given course
3. **University Core Courses:** course attributes that indicate whether a PWL course is part of the university core curriculum (https://www.purdue.edu/provost/students/s-initiatives/curriculum/courses.html)
4. **Course ID:** a unique identifier that represents a specific course

Other Information & Definitions

1. **Suffixed Courses:** A suffix is an alpha character that follows the five digit course number (i.e. COM 11400C). Suffixes are used to help identify particular sections of a course that are intended for distinct populations. For more information on suffixed courses, see the appendix.
2. **Space Remaining:** Limit - Registered Students = Space Remaining
3. **Collapsible menu**: contains overall course space details that are not affected by any of the population filters.



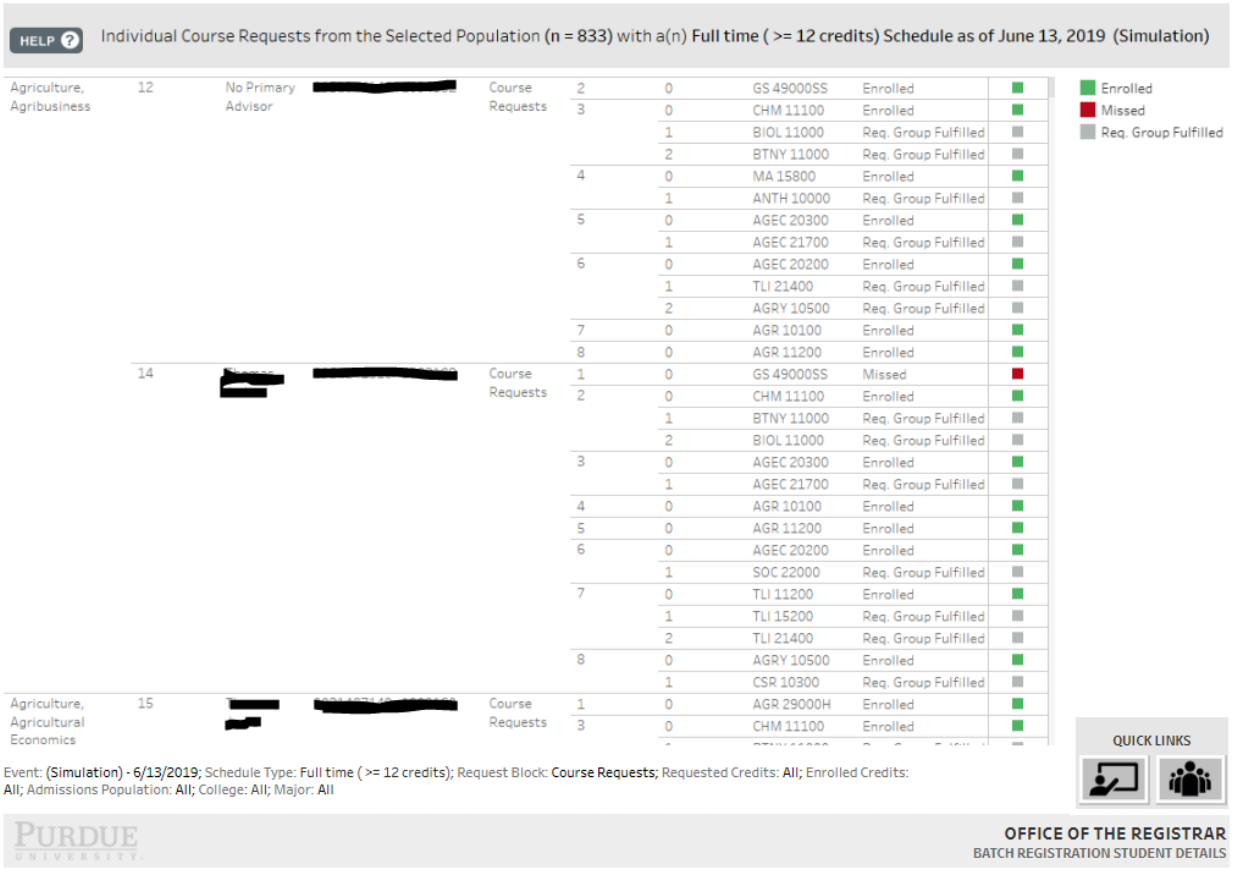
Questions to answer with this tab

1. What were the most popular first choice, first alternate, second alternate, etc. choice courses that a select student population either received or missed in their schedule?
2. Are students in a given major following their plan of study with regard to their course requests?
3. If a given course was missed, is it due to lack of space?

Known issue & workaround: *Some tooltips from the charts on the left hand side of the screen will not display unless the collapsible menu is open.*

STUDENT DETAILS

Purpose: Provides the ability to drill in further to student level details if a problem is identified with regard to space at the aggregate level.



Other Information & Definitions

1. **Hover** over the Help icon to review download instructions and troubleshooting.
2. **Download** includes college, major, number of registered credits, primary advisor name, student ID, course requests and status of each course request.
3. The statuses of each request include Enrolled, Missed and Request Group Fulfilled.
    a. **Enrolled**: For simulations, this means that the solver has given this student a seat in the course. For actuals, this means that the student is truly registered.
    b. **Missed**: The solver did not give this student a seat in the course or in any alternatives the student placed on the course request form.
    c. **Req. Group Fulfilled**: The solver was able to place the student in a priority or other alternate choice course within the same priority grouping, and this course was not needed in the schedule.

Questions to answer with this tab

What are the course request details of each student within a select population?

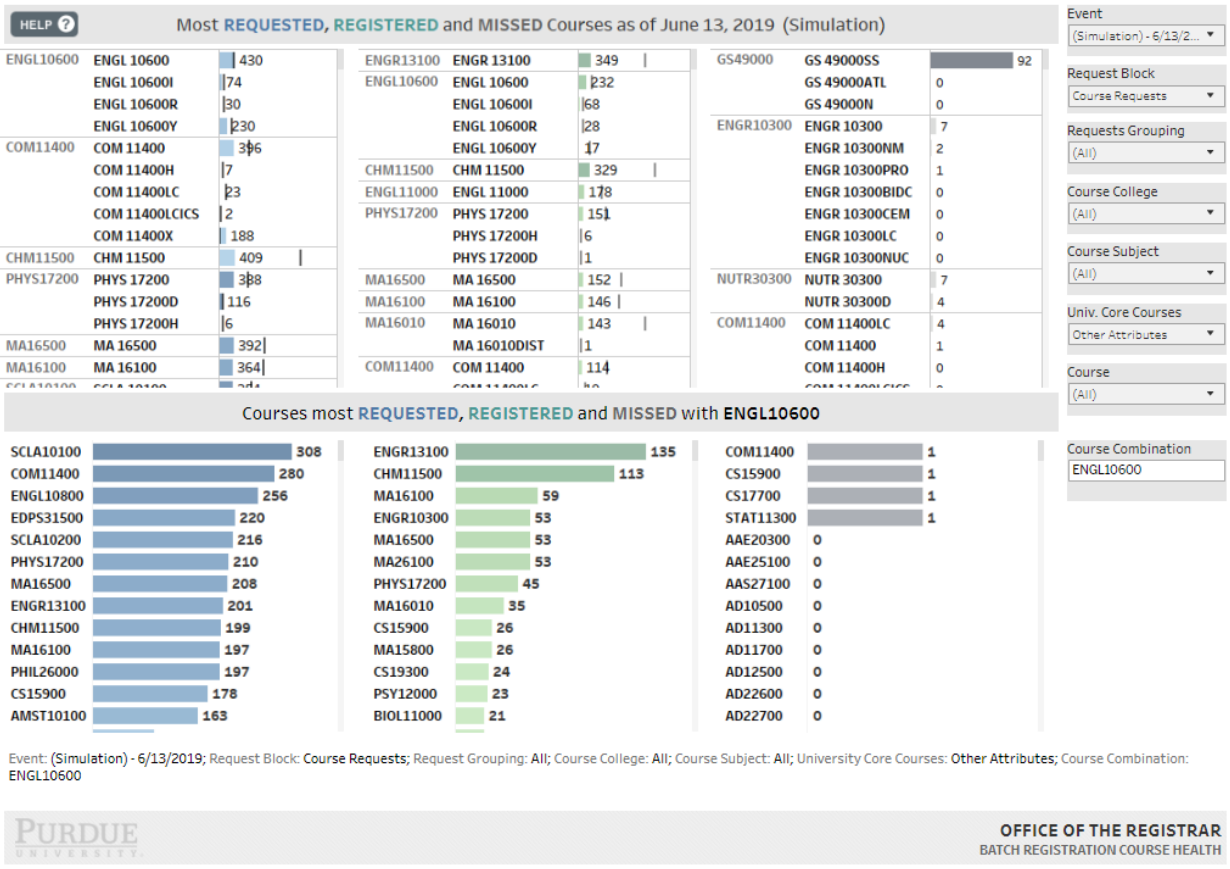
COURSE HEALTH

Purpose: The top half of this tab provides three lists of courses, showing the demand (number of requests) on the left, seats utilized or space remaining in the list in the middle and most missed courses on the right. The user can identify a specific course or group of courses to identify where demand exceeds capacity.

The bottom half of this tab allows the user to enter a course in the Course Combination filter in order to identify popular combinations of courses, at the request stage, the registration stage or when both courses do not exist in a student's schedule, even after requesting both.

Additionally, users can utilize the tooltips to identify the student college breakdown of each bar within each chart.

This tab is set to the Course Requests section of the Course Request Form by default.



Filters & Definitions

1. **Event:** shows whether the data provided is a simulation or actual registration dataset and the date that the data was loaded to the dashboard. For simulations, this is in line with the date that the simulation run ended. For actuals, data is from the previous night's load. The latest event (latest date) will appear here by default.

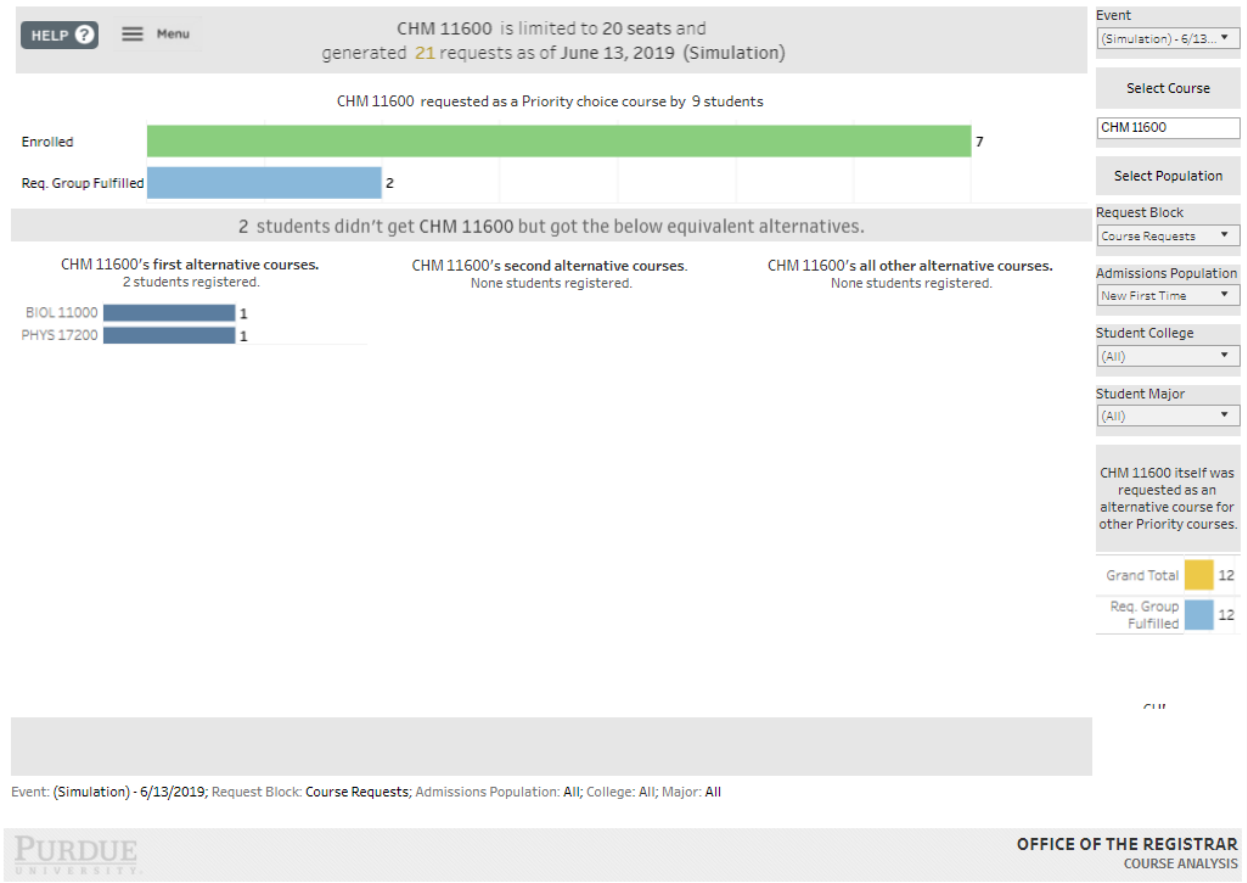
2. **Request Block:** This allows the user to select only the upper or lower portion of the course request form. You may want to select "Course Requests" for example when trying to identify the most requested courses that students placed in the priority section.
    a. Course Requests: upper section of the form
    b. Substitute Requests: lower section of the form
3. **Request Grouping:** This allows the user to identify courses that were in the first choice, first alternate, second alternate, etc. choice slots of the course request and/or substitute request section of the course request form.
4. **Course College**: the college that offers a course
5. **Course Subject:** a three or four letter code and description indicating the broad subject matter of a given course
6. **University Core Courses:** course attributes that indicate whether a PWL course is part of the university core curriculum (https://www.purdue.edu/provost/students/s-initiatives/curriculum/courses.html)
7. **Course ID:** a unique identifier that represents a specific course
8. **Course Combination:** a unique identifier that represents a specific course—when a course id is entered here, it only applies to the lower half of the dashboard.

Questions to answer with this tab

1. How many requests were there for a specific course and how are those requests broken down by college?
2. How many students received or missed a specific course in their schedule and what is their college breakdown?
3. What other courses are most often requested with a given course?
4. What other courses are most often registered along with a given course?

COURSE ANALYSIS

Purpose: This tab allows a user to do a deeper analysis of the demand of a suffixed course. It allows a user to see not only the number of requests for a given course, but also how many were priority choices, how many of those requests were fulfilled and if they were not fulfilled, which alternatives were offered to the student instead of the priority course selected. This tab is rich with additional details such as the number of students who requested the course without other alternatives, the number of students who requested the course as an alternative, and the number who were registered for the course as an alternative to a priority choice. Tooltips show the student college breakdown. The collapsible menu on the left allows users to gain contextual knowledge about space remaining in a given course irrespective of filters selected.



Filters & Definitions

1. **Event:** shows whether the data provided is a simulation or actual registration dataset and the date that the data was loaded to the dashboard. For simulations, this is in line with the date that the simulation run ended. For actuals, data is from the previous night's load. The latest event (latest date) will appear here by default.
2. **Select Suffixed Course:** A suffix is an alpha character that follows the five digit course number (i.e. COM 11400C). Suffixes are used to help identify particular sections of a course that are intended for distinct populations. For more information on suffixed courses, see the appendix.

3. **Request Block:** This allows the user to select only the upper or lower portion of the course request form. You may want to select "Course Requests" for example when trying to identify the most requested courses that students placed in the priority section.
    a. Course Requests: upper section of the form
    b. Substitute Requests: lower section of the form
4. **Admissions Population:** allows the user to identify new beginners vs. other populations of incoming students.
5. **Student College:** allows the user to identify a specific college
6. **Student Major:** allows the user to identify a specific major

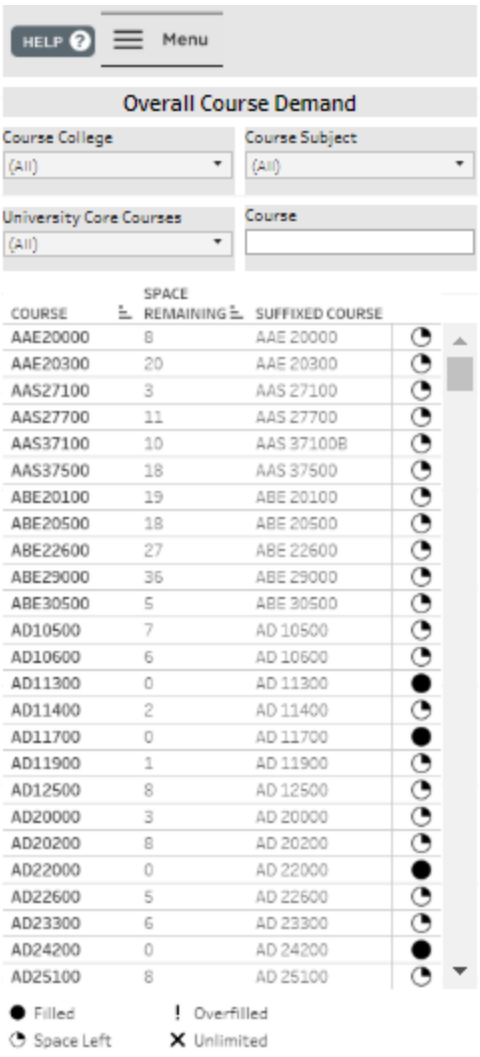
Filters

These filters only apply to the collapsible menu that shows the amount of space that remains in a course as of the simulation event selected on the first tab.

1. **Course College**: the college that offers a course
2. **Course Subject:** a three or four letter code and description indicating the broad subject matter of a given course
3. **University Core Courses:** course attributes that indicate whether a PWL course is part of the university core curriculum (https://www.purdue.edu/provost/students/s-initiatives/curriculum/courses.html)
4. **Course ID:** a unique identifier that represents a specific course

Other Information & Definitions

4. **Suffixed Courses:** A suffix is an alpha character that follows the five digit course number (i.e. COM 11400C). Suffixes are used to help identify particular sections of a course that are intended for distinct populations. For more information on suffixed courses, see the appendix.
5. **Space Remaining:** Limit - Registered Students = Space Remaining
6. **Collapsible menu**: contains overall course space details that are not affected by any of the population filters.



Questions to answer with this tab

1. What is the demand for a given suffixed course?
2. How many priority requests were there for a specific suffixed course and how are those requests broken down by college?
3. How many students received or missed a specific suffixed course in their schedule and what is their college breakdown?
4. What other courses are most often requested with a given suffixed course?
5. How many students who asked for a given suffixed course, missed the course in their schedule and did not request an alternative?

Known issue & workaround: *Some tooltips from the charts on the left hand side of the screen will not display unless the collapsible menu is open.*

Appendix A - Course Request Form

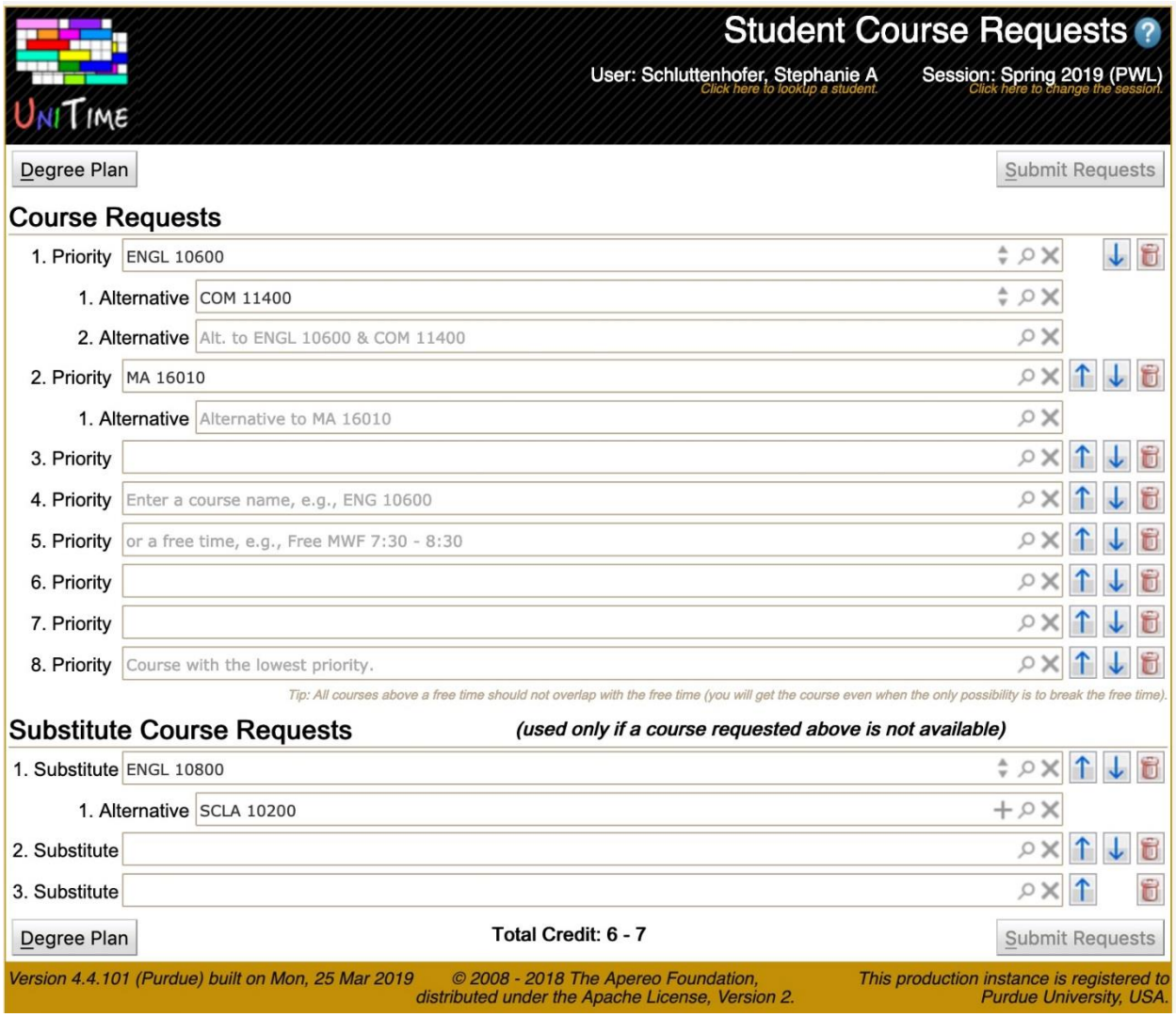
Before and during the construction of the schedule of classes, course demands are collected from students. During this pre-registration process, each student can indicate the list of requested courses together with his or her preferences. These preferences contain course priorities (order of courses based on their importance for the student), alternative course requests (each course request can have one or more alternative courses), free time requests, wait-list preferences (if a student cannot be enrolled into the course, e.g., because of the space available, should he or she be assigned to the appropriate wait-list for the course), and additional schedule distribution preferences.

Students generally fill out a course request form with their advisors during STAR. Consider the course request form to be sort of a “shopping cart” or a list of courses that a student would like to have in his/her schedule.

Note that there are two main sections to the course request form: the priority course request section and the substitute course request section. The priority section provides us with an ideal number of courses that the student desires. Generally, students are recommended to request at least 15 credit hours from this top section, but they are able to save their course request form with fewer than 15 credit hours.

Students have the option to select alternatives for each priority course. The priority course is the student’s first choice course within the group, then alternate 1, alternate 2 and so on. If the solver is unable to place a student in their first choice for any reason, it will move down the list. If none of the courses within that priority grouping are able to be placed in the schedule, then we jump down to the substitute section of the course request form. The substitute course requests help us ensure that students will maintain the desired number of courses.

It is also important to note the difference: courses in 1. Alternative, 2. Alternative, etc. are only alternative to each other and to the priority course they are underneath; the substitute course requests can work as an alternative to any course from the upper table. So, for instance, as a substitute course, a student can put in an optional course or a course he/she would prefer to take next Spring but that can, if needed, be taken when he/she is not able to get a communication course or some other high demand course or its alternative from the upper block.


UniTime
Student Course Requests
User: Schluttenhofer, Stephanie A
Click here to lookup a student.
Session: Spring 2019 (PWL)
Click here to change the session.
Degree Plan
Submit Requests
Course Requests
1. Priority ENGL 10600
1. Alternative COM 11400
2. Alternative Alt. to ENGL 10600 & COM 11400
2. Priority MA 16010
1. Alternative Alternative to MA 16010
3. Priority
4. Priority Enter a course name, e.g., ENG 10600
5. Priority or a free time, e.g., Free MWF 7:30 - 8:30
6. Priority
7. Priority
8. Priority Course with the lowest priority.
Tip: All courses above a free time should not overlap with the free time (you will get the course even when the only possibility is to break the free time).
Substitute Course Requests
(used only if a course requested above is not available)
1. Substitute ENGL 10800
1. Alternative SCLA 10200
2. Substitute
3. Substitute
Degree Plan
Total Credit: 6 - 7
Submit Requests
Version 4.4.101 (Purdue) built on Mon, 25 Mar 2019
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This production instance is registered to Purdue University, USA.

Appendix B - Unique Course Setups and Suffixes

There are many reasons why departments may choose to set their courses up using suffixes. A suffix is an alpha character that follows the five digit course number (i.e. COM 11400C). Suffixes are used to help identify particular sections of a course that are intended for distinct populations. In the Course Request Form (within UniTime), to support scheduling, suffixes are treated as separate course offerings (courses containing suffixes maybe treated as alternatives in the Course Request Form). However, in Banner they are treated as the same course.

It is important to note that course setups may change from term to term. There are pros and cons to setting up courses with suffixes. The below fall 2018 examples will help illustrate two courses which are set up differently.

EXAMPLE #1

COM 11400-includes BOTH traditional lecture and distance based sections

COM 11400C-This is intended ONLY for the Polytechnic Institute Students.

COM 11400H-Honors

COM 11400LC-Learning Communities

COM 11400LCICS-Learning Communities

COM 11400X-Evening sections

EXAMPLE #2

ENGL 10600-traditional lecture ONLY

ENGL 10600I-intended for international students

ENGL 10600E- This is intended ONLY for the Polytechnic Institute Students.

ENGL 10600R- Learning Community

ENGL 10600Y-DISTANCE ONLY

Additional Information

To help understand the differences between suffixed courses, please click on the magnifying glass in one of the priority rows on the course request form in UniTime. Departments have tried to add notes to each of the courses/suffixes to help clarify the intent.

Appendix C – Underlying Data Assumptions, Logic and Definitions

This section is meant to identify anomalies in the data that may cause very slight differences the end user may see between UniTime and this dashboard.

1. If a course was requested that does not exist in the course catalog for the academic period, that request was eliminated from this dataset. (For example, there were 8 requests for 2 courses that did not exist in Fall 2018 out of about 72,000 requests. This will also affect the number of credit hours requested by a student.
2. In the solver, all course information is at the suffixed course level. This dashboard shows course information at the Course ID level. The difference is apparent when looking at credit hours. Credit hours can be variable at the course level, and at the suffixed course level. Because students are not able to request a specific number of credit hours for a course, the course is assigned the non-zero minimum credits in UniTime. In the dashboard, courses are shown with the minimum credit hours unless the minimum is zero. If that is the case, the maximum credit hours are shown. This logic was used because of the data available through the Course Catalog view within Schedule Offering.
3. Courses beginning with REG were not included in the dashboard dataset.
4. Known test students were eliminated from the dashboard dataset.
5. Free time is not included in any of the dashboard information. This can be viewed in UniTime.
6. Live application data is used for every event on the dashboard except for Fall Census.