



Office of Information Technology

Academic Web Technologies

The ScoreShare Story

August 2018 • UCCSC

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Software Engineer

Overview

- Why build ScoreShare? (Ray)
- How we built ScoreShare (Alissa)
- Q&A

What is ScoreShare?

- **Opt-in tool** for students to share interim assignment scores with advisors
 - Students **must** opt-in
 - No automatic opt-ins
- Equivalent of printing a **grade sheet** and showing it to an advisor
 - Advisors see no more than what students see
- **Assignment scores** pulled from both UCI Canvas & the legacy LMS's gradebook
 - We're using Canvas Data

Assignment Scores Done

Travis Smith

STUDENT ID	MAJOR	UCINETID	TAGS
12345678	COMP SCI	tsmith	Subject to DQ Add/remove tags

Spring 2018 Winter 2018 Fall 2017 Summer II 2017 Summer 10wk 2017 Summer I 2017

MATH 2A LEC A: CALCULUS (34590)

Assignment	Score	Category
Quiz - Weeks 1 & 2	10/20	Quizzes (50%)
Quiz - Weeks 3-6	10/20	Quizzes (50%)
Midterm	90/100	Exams (25%)
Quiz - Weeks 7-9	10/20	Quizzes (50%)
Practice Quiz <small>This assignment is excluded from the student's final grade.</small>	10/20	Quizzes (50%)
Capstone Essay <small>Student submitted this assignment, but it hasn't been graded yet.</small>	~/100	Essay (25%)
Capstone Essay Reflections <small>Student hasn't submitted this assignment.</small>	~/10	Essay (25%)
Practice Quiz <small>Student has resubmitted this assignment, but it hasn't been graded yet.</small>	10/20	Quizzes (50%)
Quiz - Week 5 & 6 <small>This assignment is excluded from the student's final grade.</small>	EX/20	Quizzes (50%)
Final Exam <small>Student has submitted this assignment, but scores have not yet been released.</small>	~/20	Quizzes (50%)
Final Exam <small>Scores has not yet been released.</small>	~/20	Quizzes (50%)

Why ScoreShare?

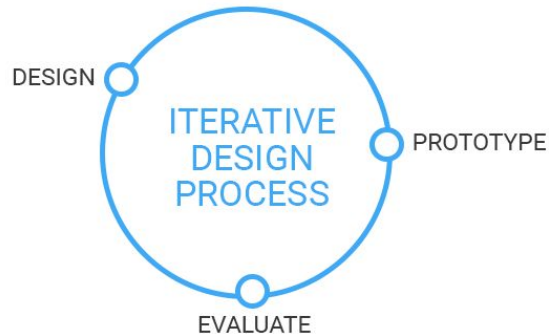
- Advisors often have incomplete or second-hand information
 - Print-outs of grade sheets
 - Students saying how well they are (or aren't) doing
- UCI growing its toolset for academic advisors
 - Compass: delivers reports on students in many lenses (academics, progression, demographics, etc.)
 - <http://compass.uci.edu>
 - Appointments: online appointment scheduling system
 - <https://appointments.due.uci.edu>
 - Scout: online form management app
 - <https://scout.eee.uci.edu>
 - ScoreShare
 - <https://scoreshare.eee.uci.edu>

Origins

- Requested by Athletics
 - Aid with timely NCAA compliance
 - Replace paper process
- Emergent need by Undergraduate/Undeclared Advising
 - Replace paper process
- Desire to make tools to help advisors
 - We have a lot of rich data
 - Would it be useful (and appropriate) for advisors to have access?

User-Centric Design Process

- User interviews
 - Participants: Athletics, U/U, Nursing, Pharm Sci, Phys Sci, ICS
- Mockups & feedback
- Pilot



Questions/Goals

Thursday, July 21, 2016 1:08 PM

Things we need to know

- Do they look at assignment grades now?
 - If so, how?
 - If not, why not?
- Why would they use ScoreShare
- How would they use ScoreShare
- Who would use ScoreShare
- Are these constraints acceptable:
 - Student must opt-in
 - Not all instructors use Canvas Gradebook or EEE Gradebook
 - Not all instructors who do use them release their scores
 - Not all instructors who release their scores also release stats
 - Advisor view would show only the data the student had access to
 - Unless we went to the Academic Senate?

Prompting questions (if needed)

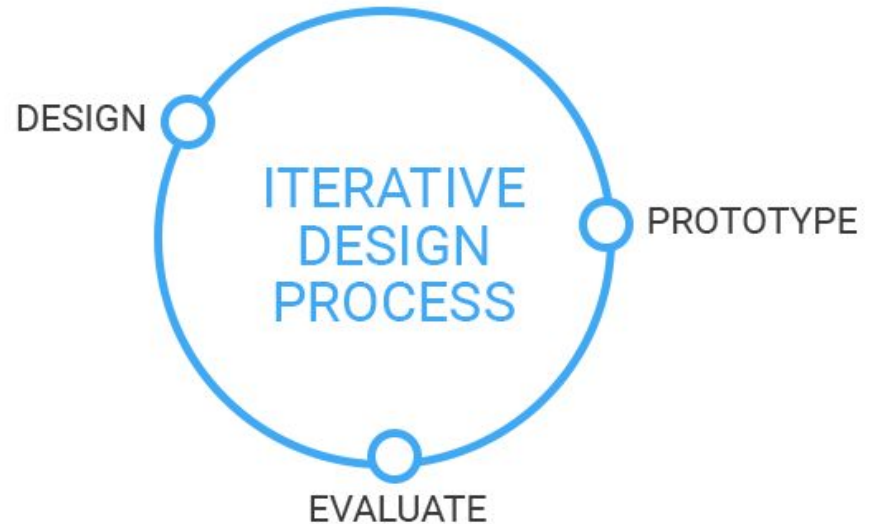
- How do you view interim student grades?
- What are you usually looking for when you look at those interim grades?
- How often are interim grades required to be reported as a part of an AP/DQ avoidance contract?
- If you store these grades now (rather than just view them), how/where do you store them?
 - What sorts of retention policies are in place for these?
- Suppose you had access to an online system that would display assignment scores and grades from Canvas Gradebook and EEE Gradebook.
 - How would you use this data?
 - Would this data help you to more effectively advise students?
 - Who in your office would need access to such a system?

Philosophical Differences

- First: All UCI undergraduate advising units are understaffed
- Two differing advising philosophies:
 - Provide as much guidance and monitoring as possible
 - Be hands-off and intervene only when necessary

2017 Pilot

- **Philosophy**
 - User-centered Design
 - Build to the Need
 - Break down the Silos
 - Embed Ourselves
- **Approach**
 - Business Analysis
 - Prototyping
 - Iterate
 - User Test
 - Improve
 - REPEAT!



Design Evolution

[View my students](#)
Travis Smith
 STUDENT ID # 12345678 MAJOR COMP SCI EMAIL tsmith@uci.edu
MATH 2A LEC A: CALCULUS (34590)

Assignment	Score
Quiz - Weeks 1 & 2	10/20
Quiz - Weeks 3-6	10/20
Quiz - Midterm	90/100
Quiz - Weeks 7-9	10/20

HISTORY 21A LEC A: BEG-1650 (55400)

Assignment	Score
Midterm #1	A-
Midterm #2	B+

Classes with no released scores
 MATH 2A DIS A: CALCULUS (34591)
 HISTORY 21A DIS A: BEG-1650 (55401)
 I&CSCI 32 LEC: PYTHON (24040)
 UNI STU 3A: COMP GAMES (89323)

Assignment Scores Done

Travis Smith

STUDENT ID 12345678 MAJOR COMP SCI UCINETID tsmith TAGS Subject to DQ Add/remove tags

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Capstone Essay Reflections <small>Student hasn't submitted this assignment.</small>	-/10	
Practice Quiz <small>Student has resubmitted this assignment, but it hasn't been graded yet.</small>	10/20	
Quiz - Week 5 & 6 <small>This assignment is excluded from the student's final grade.</small>	EX/20	
Final Exam <small>Student has submitted this assignment, but scores have not yet been released.</small>	-/20	
Final Exam <small>Scores has not yet been released.</small>	-/20	

12345678 DANCE, I&CSCI anteater@uci.edu F19 probation Tyler Add/remove tags

Spring 2021 Winter 2021 Fall 2020 Summer 1 2020 UCI Canvas gr

Academic standing status: Subject to disqualification • Two consecutive term GPA < 2.0 (entered by School of Biological Sciences as a result of

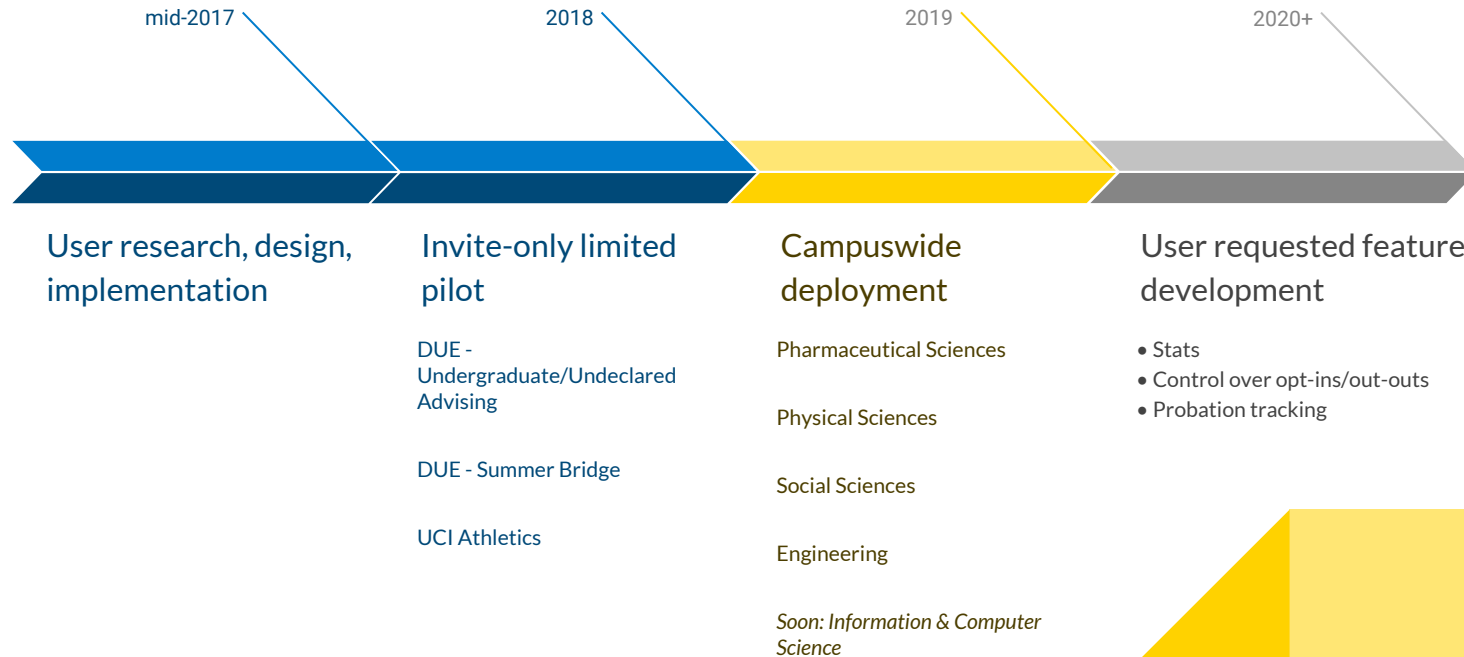
I&C SCI 33 LEC A: INTRO COMP SCI III (30103)

ASSIGNMENT	SCORE	STATS	CATEGORY
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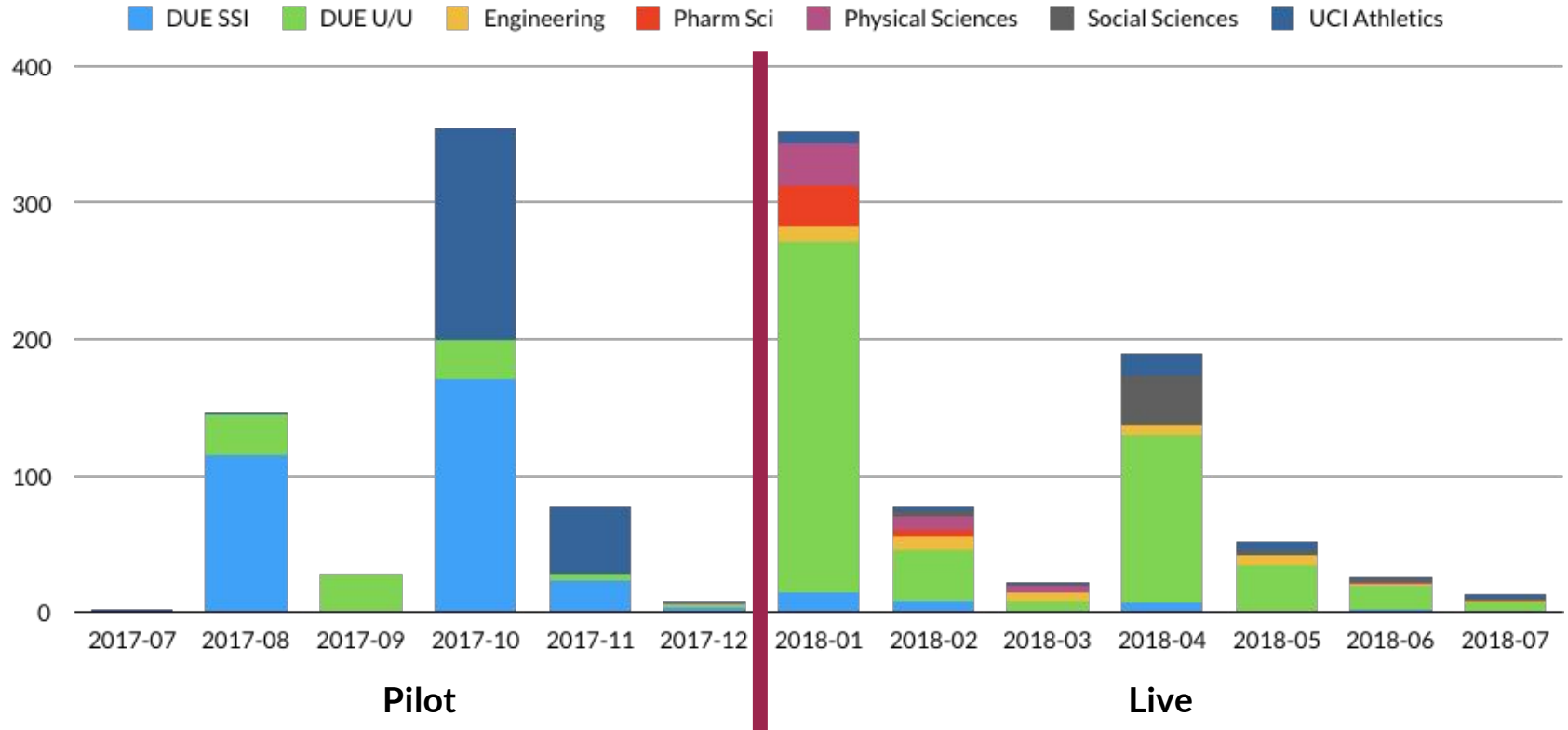
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Timeline



Who's using it - opt-ins over time



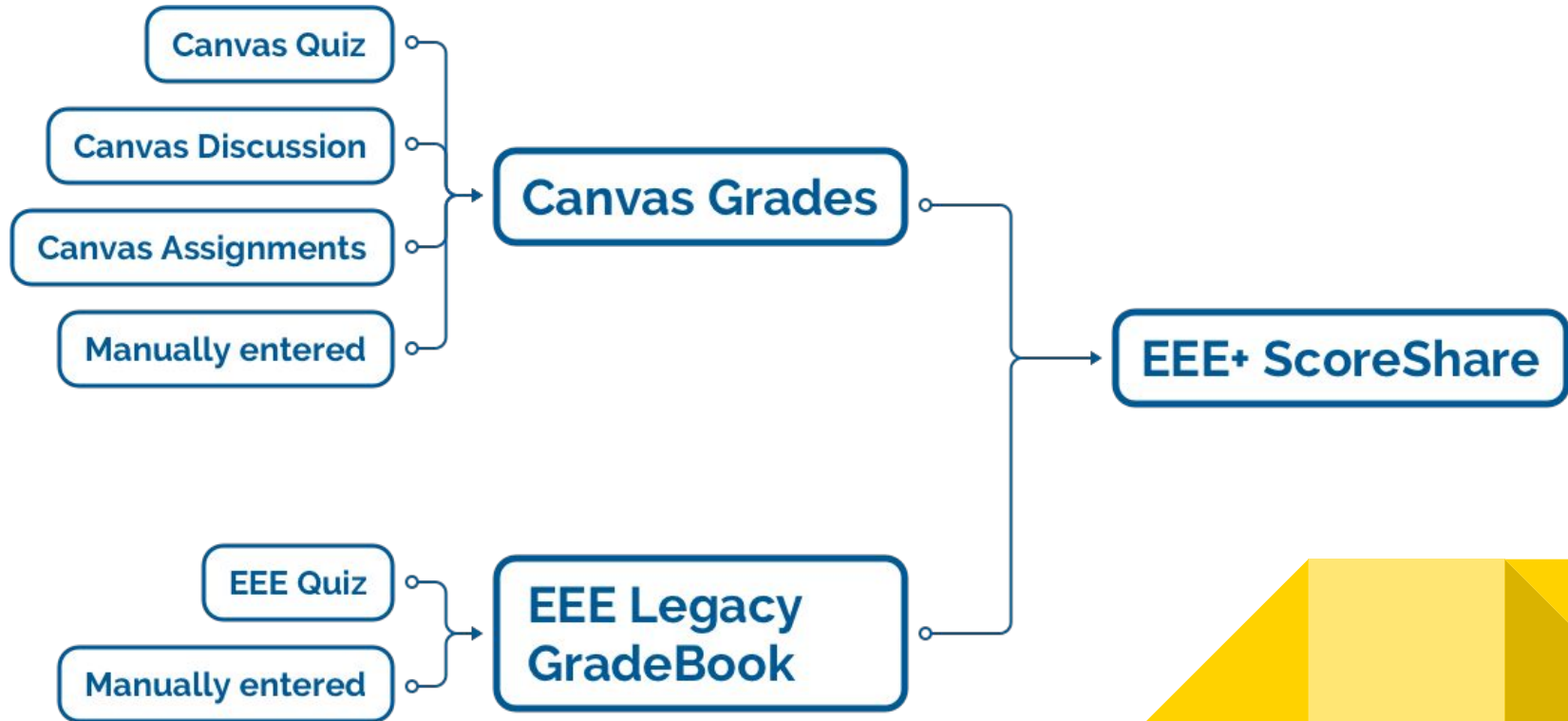
Who's using it?

- UCI Athletics
- Division of Undergraduate Education
 - Undergraduate/Undeclared Advising
 - Student Success Initiatives (to support students in the Summer Bridge program)
- School of Engineering
- Program in Pharmaceutical Sciences
- School of Physical Sciences
- School of Social Sciences

Features: Data feeds

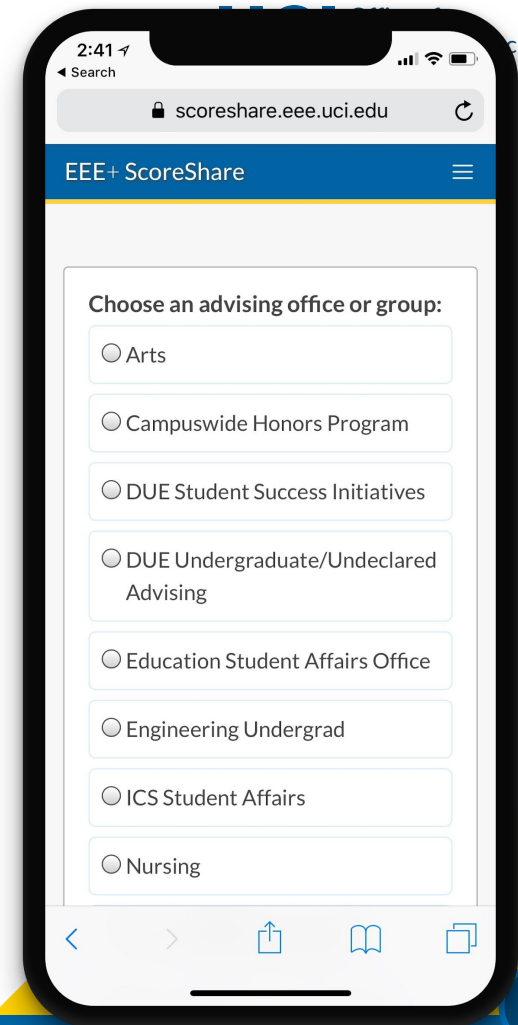
- **Assignment scores from both UCI Canvas and legacy LMS gradebook**
- **Timely data**
 - Real-time for legacy gradebook
 - 1-2 day delay for UCI Canvas due to Canvas Data processing
 - We didn't use the API because it was incredibly slow; we've complained about this to Instructure and it continues to be a topic of conversation in our monthly calls with them

Grade Flow from Canvas/EEE to ScoreShare



Features: Student-facing

- **Mobile-first UI**
- 4 clicks/taps:
 - View opt-ins (and login if needed)
 - Opt-in to a group
 - Select the group
 - Confirm
- Goal: frictionless opt-in (“no excuses”)



Features: Organization

- **Tagging**
 - Advisors can tag students for easier discovery in the future

Filter by Tag: probation academic hold tagname Susan biosci my new tag Bob

Search: ID #, name, UCInetID

STUDENT ID	NAME	UCINETID	LEVEL	MAJOR	TAGS
–	OIT AWT test account 1	awttest1	–	–	probation academic hold tagname Susan biosci Bob
–	OIT AWT test account 2	awttest2	–	–	probation
–	OIT AWT test account 3	awttest3	–	–	–



Demo time!

What is Canvas Data?

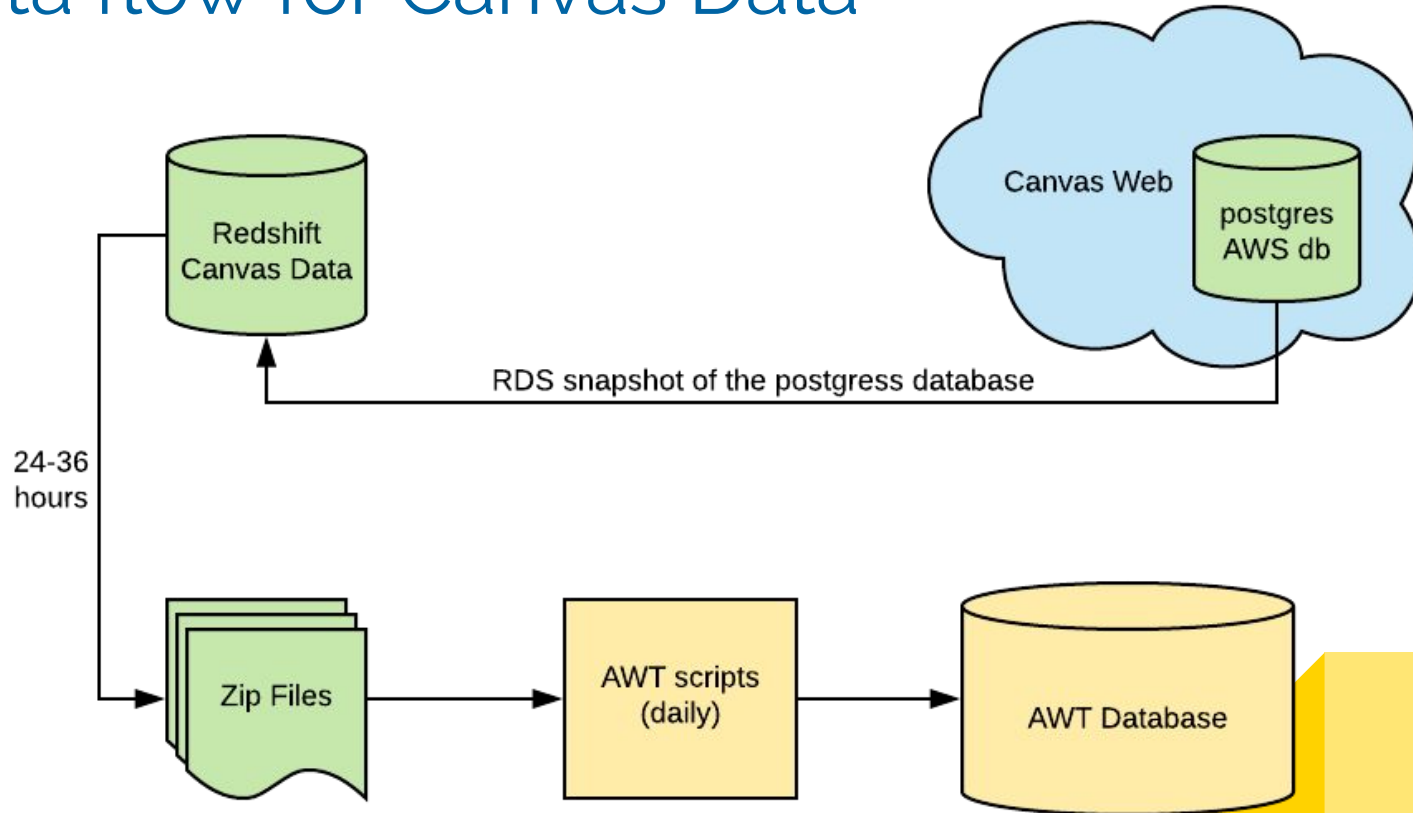
“Canvas Data is a service that provides schools with optimized access to all their data for reporting and queries.” - Instructure

- Transformed version of almost all of the data from your instance of Canvas (assignments, users, etc.)
- Star-schema for easy data warehousing, processing, etc.



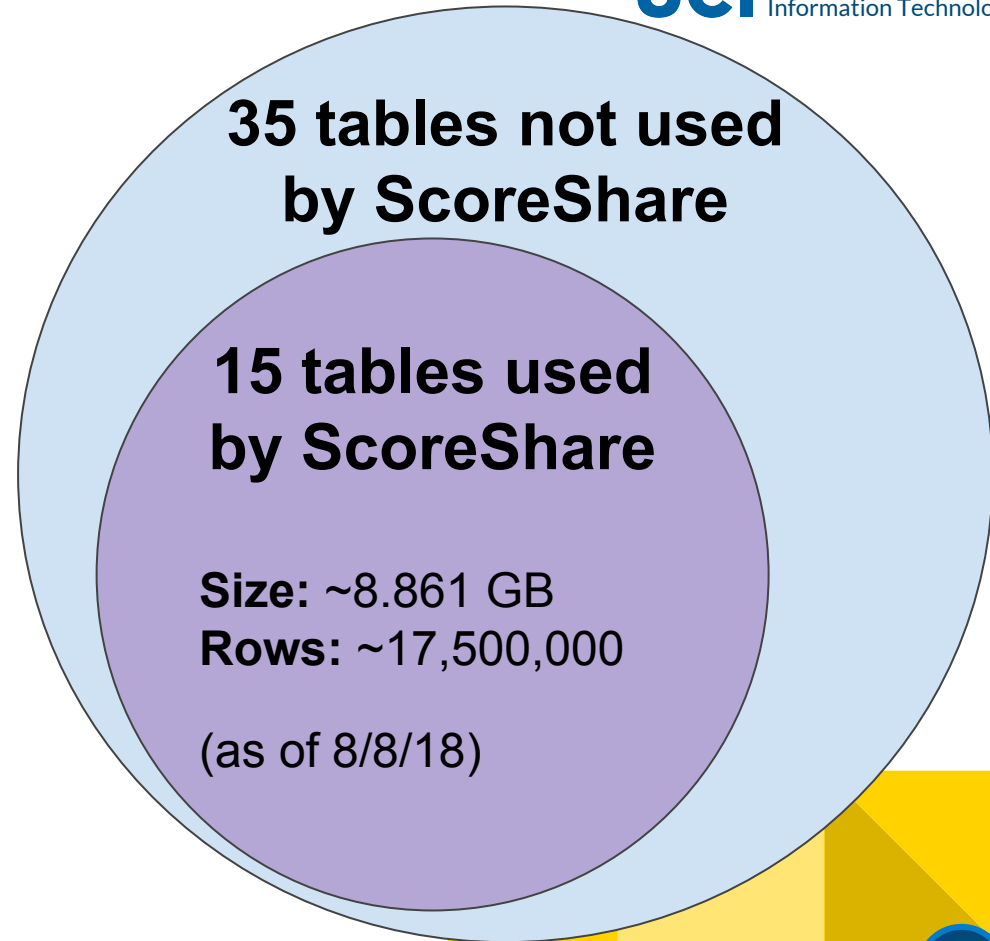
*“Canvas Data.
Insights. Action.”
- Instructure*

Data flow for Canvas Data



Canvas Data Tables

- 50 tables total
- Download all 50 tables
 - Used by another group on campus (Compass)
 - Potential for data analysis in the future
- Load 15 tables into our database
 - Takes 2-4 hours to load just those 15



Canvas Data Tables Used by ScoreShare

Assignment Info	
Assignment Details	assignment_dim, assignment_fact
Category Names	assignment_group_dim
Category Weights	assignment_group_fact
Drop highest/lowest flag	assignment_group_rule_dim
Due Dates Overrides	assignment_override_dim, assignment_override_fact
Drop Rules	assignment_rule_dim

Additional Info for Linking (Unexpected)
assignment_override_user_dim, assignment_override_user_fact, assignment_override_user_rollup_fact

User Info
user_dim

Submission Info
submission_dim, submission_fact

Course Info
course_dim

Canvas Data Tables Used by ScoreShare

Assignment Info	
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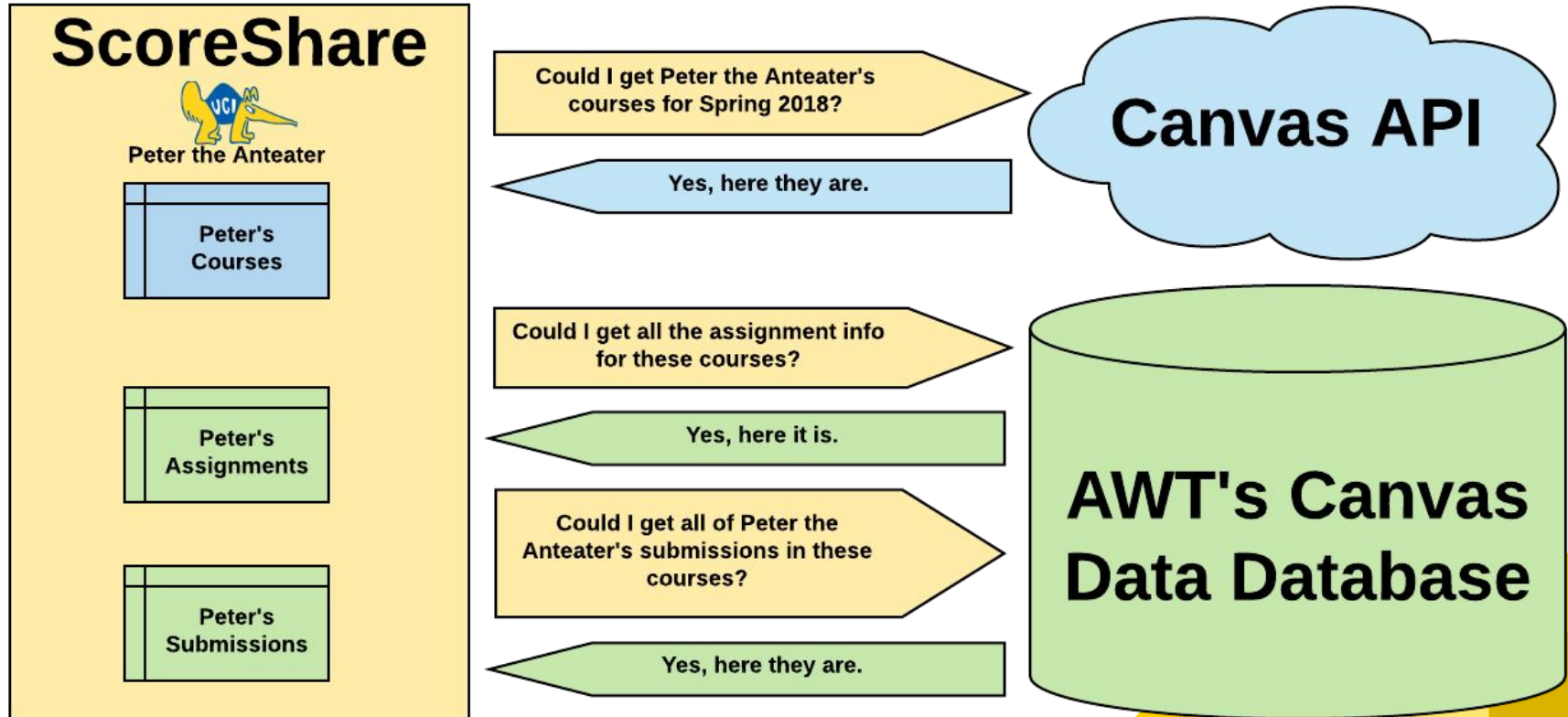
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User Info
user_dim

Submission Info
submission_dim, submission_fact

Course Info
course_dim

Canvas API vs. Canvas Data



Why not use the API?



```

Guzzle Profiler: [1] GET https://uc Irvine.test.instructure.com/api/v1/courses/624/assignment_groups?per_page=100 228 ms / 44.8 MB
ids[]=40&per_page=100 377 ms / 44.8 MB

Guzzle Profiler: [5] GET https://uc Irvine.test.instructure.com/api/v1/courses/4639/assignment_groups?per_page=100 164 ms / 44.8 MB
ment&student_ids[]=40&per_page=100 1455 ms / 44.8 MB
1/courses/1545/assignment_groups?per_page=100 194 ms / 44.8 MB
clude[]=assignment&student_ids[]=40&per_page=100 234 ms / 44.8 MB
api/v1/courses/620/assignment_groups?per_page=100 201 ms / 44.8 MB
ons?include[]=assignment&student_ids[]=40&per_page=100 481 ms / 44.8 MB
re.com/api/v1/courses/1012/assignment_groups?per_page=100 195 ms / 44.8 MB
s/submissions?include[]=assignment&student_ids[]=40&per_page=100 595 ms / 44.8 MB
vine.test.instructure.com/api/v1/courses/986/assignment_groups?per_page=100 219 ms / 44.8 MB
1350/students/submissions?include[]=assignment&student_ids[]=40&per_page=100 378 ms / 44.8 MB
ps://uc Irvine.test.instructure.com/api/v1/courses/4893/assignment_groups?per_page=100 274 ms / 44.8 MB
rml/api/v1/sections/6828/students/submissions?include[]=assignment&student_ids[]=40&per_page=100 1402 ms / 44.8 MB

Guzzle Profiler: [17] GET https://uc Irvine.test.instructure.com/api/v1/courses/522/assignment_groups?per_page=100 192 ms / 44.8 MB
https://uc Irvine.test.instructure.com/api/v1/sections/718/students/submissions?include[]=assignment&student_ids[]=40&per_page=100 1125 ms / 44.8 MB

Guzzle Profiler: [19] GET https://uc Irvine.test.instructure.com/api/v1/courses/3361/assignment_groups?per_page=100 200 ms / 44.8 MB
er: [20] GET https://uc Irvine.test.instructure.com/api/v1/sections/4275/students/submissions?include[]=assignment&student_ids[]=40&per_page=100 404 ms / 44.8 MB

Guzzle Profiler: [21] GET https://uc Irvine.test.instructure.com/api/v1/courses/5394/assignment_groups?per_page=100 200 ms / 44.8 MB
r Profiler: [22] GET https://uc Irvine.test.instructure.com/api/v1/sections/7446/students/submissions?include[]=assignment&student_ids[]=40&per_page=100 243 ms / 44.8 MB

Guzzle Profiler: [23] GET https://uc Irvine.test.instructure.com/api/v1/courses/5396/assignment_groups?per_page=100 224 ms / 44.8 MB
guzzle Profiler: [24] GET https://uc Irvine.test.instructure.com/api/v1/sections/7447/students/submissions?include[]=assignment&student_ids[]=40&per_page=100 236 ms / 44.8 MB

Guzzle Profiler: [25] GET https://uc Irvine.test.instructure.com/api/v1/courses/5388/assignment_groups?per_page=100 185 ms / 44.8 MB

Guzzle Profiler: [26] GET https://uc Irvine.test.instructure.com/api/v1/sections/7437/students/submissions?include[]=assignment&student_ids[]=40&per_page=100 220 ms / 44.8 MB

Guzzle Profiler: [27] GET https://uc Irvine.test.instructure.com/api/v1/courses/4890/assignment_groups?per_page=100 223 ms / 44.8 MB

Guzzle Profiler: [28] GET https://uc Irvine.test.instructure.com/api/v1/sections/6622/students/submissions?include[]=assignment&student_ids[]=40&per_page=100 303 ms / 44.8 MB

Guzzle Profiler: [29] GET https://uc Irvine.test.instructure.com/api/v1/courses/505/assignment_groups?per_page=100 183 ms / 44.8 MB

Guzzle Profiler: [30] GET https://uc Irvine.test.instructure.com/api/v1/sections/692/students/submissions?include[]=assignment&student_ids[]=40&per_page=100 370 ms / 44.8 MB

advisors/view_grades.html.twig 46 ms / 49.2 MB
_fragments/base.html.twig 45 ms / 49.2 MB
_fragments/contact_container.html.twig 1 ms / 49.2 MB

```

Maintenance

Canvas Data releases require code updates (for us).

- Releases occur once every 2-3 months (historically)
- Updates require manual work (usually just updating the version number)
- We built custom error handling and logging for this

OIT AWT test account 1

STUDENT ID	MAJOR	UCINETID	TAGS
–	–	awttest1	👤 probation 👤 academic hold 👤 Susan 👤 biosci 👤 Bob

Winter 2018 Spring 2018 **Summer I 2017** Summer I 2018 Summer 10wk 2017 Summer 10wk 2018 Summer II 2017

TEST 143 LEC A: MATH OF USER EX (99215)

Scores sourced from EEE+ Canvas • Current as of: August 5, 2018 at 9:48pm - OIT is aware of the delayed data and working on addressing the issue

Canvas Data Portal

University of California - Irvine > University of California - Irvine

Canvas Data | Documentation

- Schema Docs
- API Docs

Facts

- assignment_fact
- assignment_group_fact
- assignment_group_score_fact
- assignment_override_fact
- assignment_override_user_fact
- assignment_override_user_rollup_fact
- communication_channel_fact
- conference_fact
- conference_participant_fact
- conversation_message_participant_fact
- course_score_fact
- course_ui_navigation_item_fact
- discussion_entry_fact
- discussion_topic_fact
- enrollment_fact
- external_tool_activation_fact
- file_fact
- grading_period_fact
- grading_period_score_fact
- group_fact
- group_membership_fact
- module_completion_requirement_fact
- module_fact
- module_item_fact
- module_prerequisite_fact
- module_progression_completion_requirement_fact
- module_progression_fact
- peer_review_fact

Version 4.0.0

Intro

The following documentation describes the warehouse conventions, the database redundancy, and how to query the data. Succinctly, fact tables contain measurements and are joined to dimension tables. Dimensions are sliced and aggregate the data (see Dimensional Modeling) which means that most of the relations should be modeled as a set of flat files or hosted in a Amazon S3 bucket. If you have questions with Canvas Data, please try posting on the Canvas Data forum.

Notes

- All timestamps in Canvas Data are in UTC.

assignment_fact

Table contains measures related to assignments.

Type: fact

Columns

Name	Type	Description
assignment_id	bigint	Foreign key to assignment dimension
course_id	bigint	Foreign key to the course associated with this assignment
course_account_id	bigint	Foreign key to the account associated with the course associated with this assignment
enrollment_term_id	bigint	Foreign Key to enrollment term table
points_possible	double precision	Total points possible for the assignment
peer_review_count	int	The number of peers to assign for review if using algorithmic assignment

Link to the public portal:

<https://portal.inshosteddata.com/docs>

Additional Challenges

- No Canvas Data for test instances
 - Harder to find projects in the tool for students
- Canvas Data is a giant, constantly growing data set
 - Required special considerations by our server support team



What's next?

Future development ideas

- Richer data from Canvas (including assignment statistics)
- Let advisors opt students out (launching soon!)
- Ties to other student data systems, like Compass
- Leverage work to provide instructors and students with better grade views
- Better tag management
- More flexible opt-outs

Spring 2021

Winter 2021

Fall 2020

Summer 1 2020

UCI Canvas gr

⚠ Academic standing status: Subject to disqualification • Two consecutive term GPA < 2.0 (entered by School of Biological Sciences as a result of

I&C SCI 33 LEC A: INTRO COMP SCI III (30103)

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Questions?

Visit ScoreShare: <https://scoreshare.eee.uci.edu/>
or email us:

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aapowers@uci.edu

Software Engineer

Screenshots

View Students - EEE+ ScoreShare

Secure | https://scoreshare.eee.uci.edu/advisor/students

EEE+ ScoreShare Support & Feedback Logged in as Ray

FERPA notice: By using EEE+ ScoreShare, you acknowledge that you are accessing FERPA-protected student data. Only access information necessary to only communicate information to individuals authorized in accordance with the provisions of FERPA and University policies. Take care to protect student from EEE+ ScoreShare.

zDemo Group - OIT internal

Filter by Tag: probation academic hold tagname Susan biosci my new tag Bob

Search: ID #, name, UCInetID

STUDENT ID	NAME	UCINETID	LEVEL	MAJOR
-	OIT AWT test account 1	awttest1	-	-
-	OIT AWT test account 2	awttest2	-	-
-	OIT AWT test account 3	awttest3	-	-

Will my students need to opt-in each quarter?

Students opt-in once per academic year; their assignment scores will be available for the duration of the academic quarter.

After the end of the academic year, opt-ins will be cleared from EEE+ ScoreShare.

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Developed by the Office of Information Technology at the University of California, Irvine

Grades for OIT AWT test acco: x +

Secure | https://scoreshare.eee.uci.edu/advisor/students/8/advisorGroup/4

Assignment Scores

Done

OIT AWT test account 1

STUDENT ID	MAJOR	UCINETID	TAGS
-	-	awttest1	probation Susan biosci Bob

Add/remove tags

Summer I 2017 Summer 10wk 2017 Summer II 2017 Fall 2017 Winter 2018 Spring 2018 Summer I 2018 Summer 10wk 2018

TEST 143 LEC A: MATH OF USER EX (99215)

Scores sourced from EEE+ Canvas • Current as of: July 15, 2018 at 8:09pm

ASSIGNMENT	SCORE	CATEGORY
Homework - Week 6	10/10	Assignments
Homework week 1 <i>Student has submitted this assignment, but scores have not yet been released</i>	--/15	Assignments
Introductions	2/5	Assignments
Graded 1st assignment but not the resubmission <i>Student hasn't submitted this assignment yet.</i>	--/15	Assignments
Second test - 1st assignment graded and resubmission graded <i>Student hasn't submitted this assignment yet.</i>	--/15	Assignments

TEST 2A LEC A: HISTORY OF USER EX (99115)

Scores sourced from EEE+ Canvas • Current as of: July 15, 2018 at 8:09pm

ASSIGNMENT	SCORE	CATEGORY
Homework - Week 6	10/10	Assignments
Homework week 1 <i>Student has submitted this assignment, but scores have not yet been released</i>	--/15	Assignments
Introductions	2/5	Assignments

Overview

ScoreShare is a tool that provides academic advisors with student assignment performance data to better inform their decision-making processes and streamline advising sessions. We (UCI's Academic Web Technologies team) partnered with academic advising units around campus to design and pilot ScoreShare in 2017.

In this session, we will share our experience building a web application that relies on assignment and grade data from Canvas, as well as the challenges in combining this with data from our legacy learning management system.

We will also provide background about the tool, why we built it, and our process for designing the tool in partnership with our advisors.