

. Doing More With Data

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Data from our LMS and academic technology ecosystem helps shape everything from end-user support to campus policies.

Last year, we implemented an official Provost Office Academic Policy for the LMS, and a number of those policies were based upon data collected from the LMS and our campus ticket system.

We use several tools for data collection, including:

1. Google Analytics
2. Blackboard Analytics for Learn (A4L)
3. Blackboard Learn Logs
4. Blackboard DDA (Direct Data Access)
5. Blackboard Data

1. Google Analytics

Google Analytics™ is a free service offered by Google for mining web traffic data to a website or application.

Configuration with Blackboard Learn was supported in Learn version 9.1 SP4 (2011).

The reports are useful to see what technologies are being used by our end-users (and when), and you can create dashboards to collect reports.

Some of the "Dimensions" that I track are:

- Operating System
- Web Browser

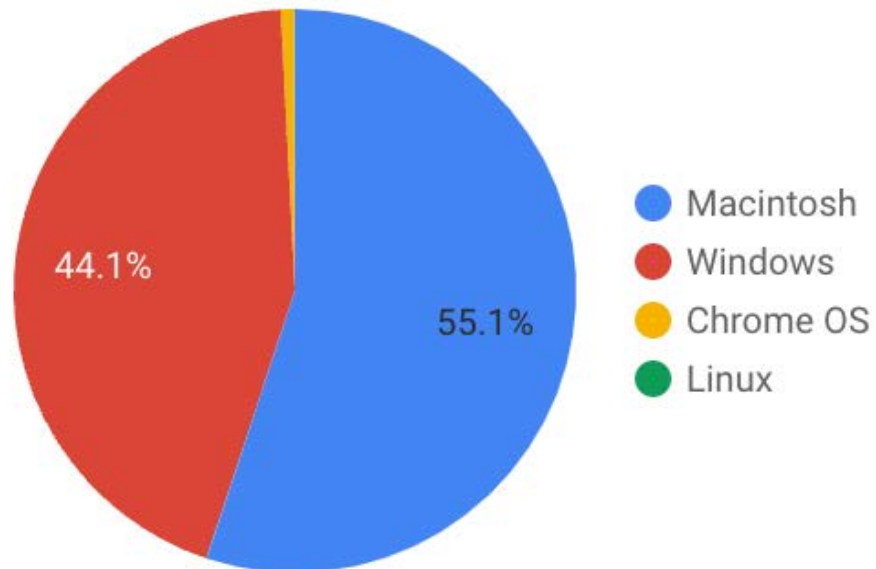
- Mobile Accesses
- Screen Resolution
- Time and days of accesses

macOS is 55.1% of our user sessions (241,775 / 456,762)

Chrome OS is 0.8% of our total sessions but it's 15.6% of our mobile sessions.

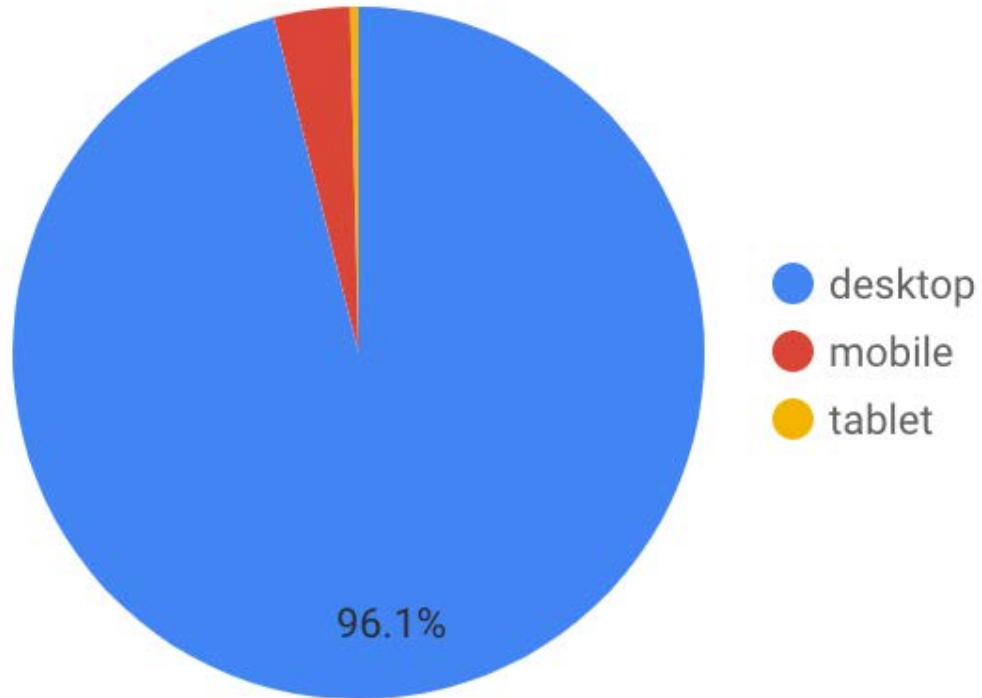
Windows or Mac?

Over the past 30 days

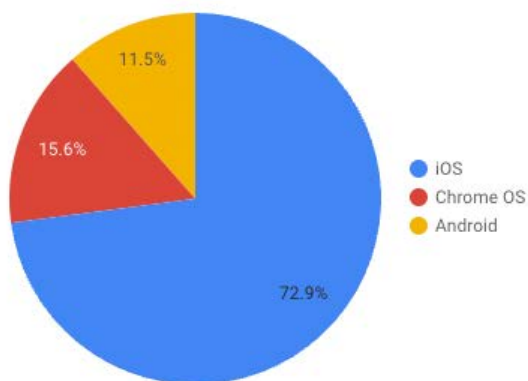


Mobile Usage vs Desktop?

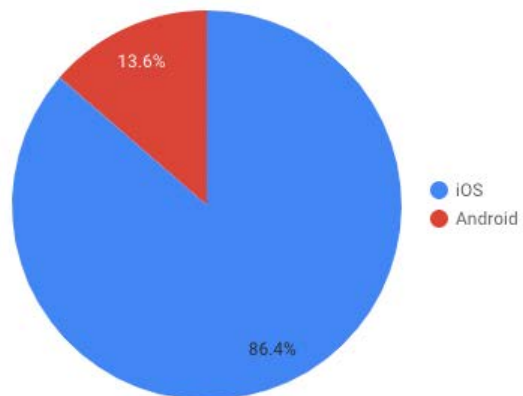
Over the past 30 days



Mobile OS (Last 30 Days)



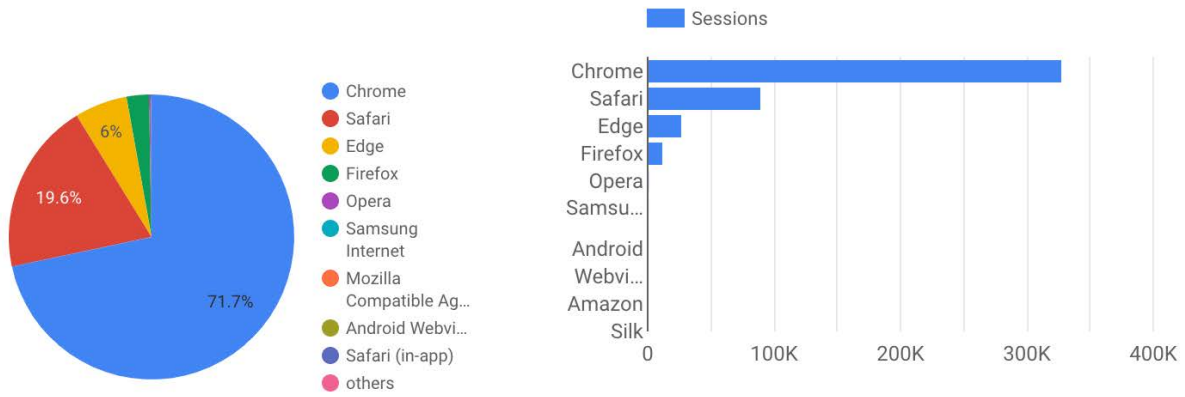
iOs vs Android



Google Chrome is 71.7% of our sessions. Safari is 19.6%. Microsoft Edge is 6%. Firefox has fallen from grace down to 2.5%.

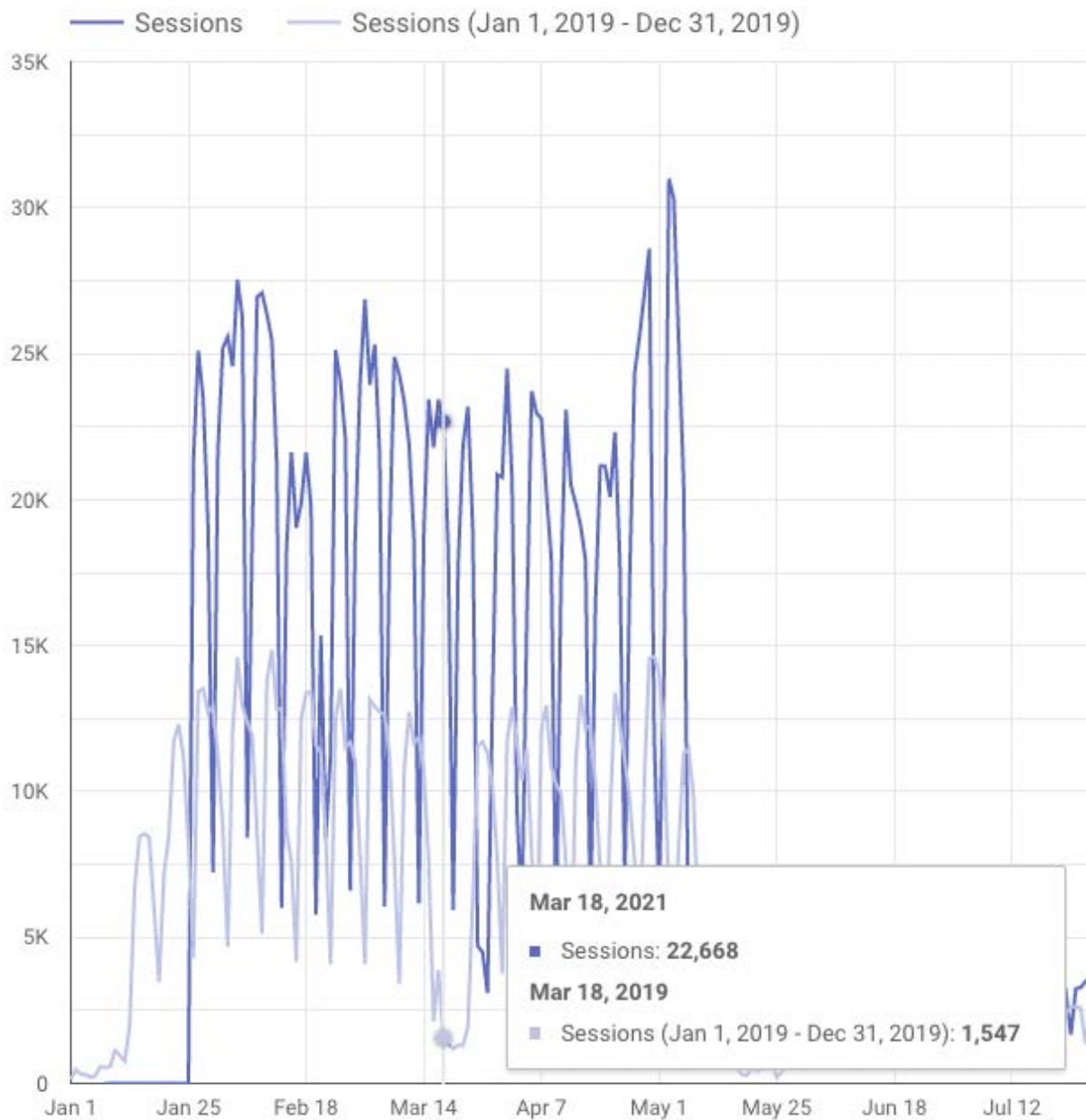
Browsers

Over the past 30 days

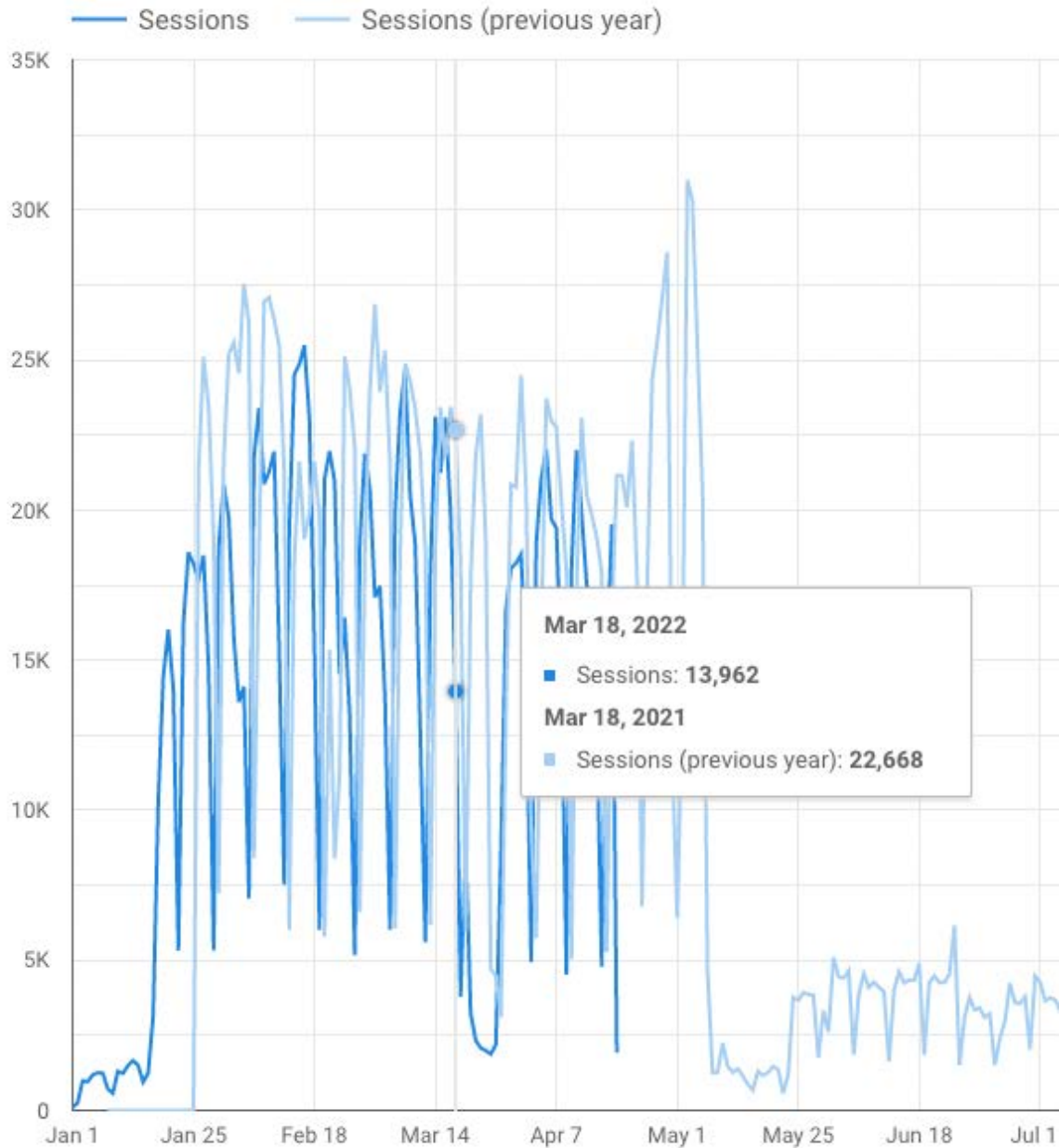


We could easily see how our Learn usage increased while our campus was remote due to COVID-19.

The first graph is pre-COVID (Spring 2019) vs. Spring 2021, where we could see a major increase in system usage.



The second graph is Spring 2020 vs. Spring 2021. Usage levels are almost as high as last year, on some days, so courses still continue to use the system heavily. (March 18, 2022 = last Friday before Spring Break.)



2. Blackboard Analytics for Learn (A4L)

Blackboard Analytics for Learn (A4L) is licensed as part of the UA System Blackboard contract.

A4L extracts data from Blackboard Learn and the Student Information System (SIS) and combines it into an analytics framework using Pyramid Analytics.

Pyramid Analytics is powerful, but has a high learning curve, for developing your own reports.

However, there's a number of delivered Learn Course Analytics reports that are useful for instructors.

Course-At-A Glance: Compare this course to others in the same department

ITEM COUNT (SAME INSTRUCTION METHOD)

ITEM	COURSE ITEMS		DEPARTMENT AVG	% DIFFERENCE
	TOTAL	AVAILABLE		
Assessment	235	75	26.3	
Content	211	156	23.8	
Tool	60	1	43.9	

% OF ITEMS ACCESSED (SAME INSTRUCTION METHOD)

ITEM	COURSE	DEPARTMENT AVG	% DIFFERENCE
Assessment	0.0 (0%)	0.0 (0%)	
Content	0.0 (0%)	0.0 (0%)	
Tool	0.0 (0%)	0.0 (0%)	

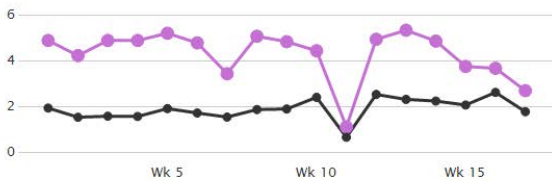
ACTIVITY (SAME INSTRUCTION METHOD)

ITEM	COURSE AVG	DEPARTMENT AVG	% DIFFERENCE
Accesses	73	32.5	
Minutes	3,748	1,217.2	
Interactions	599	272.1	
Submissions	28	8.0	

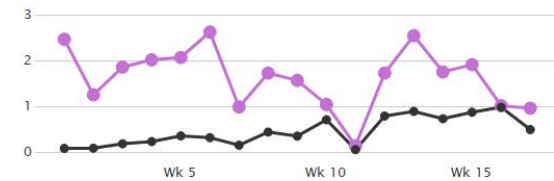
-200% -100% 0% 100% 200%

■ This Section ■ Department

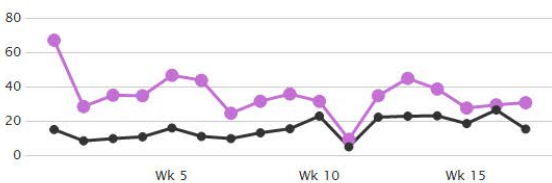
Accesses Average vs Department Average



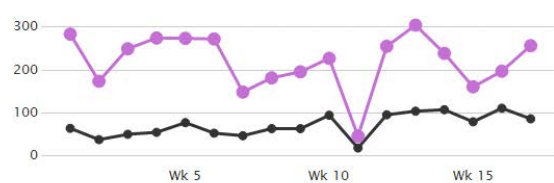
Submissions Average vs Department Average



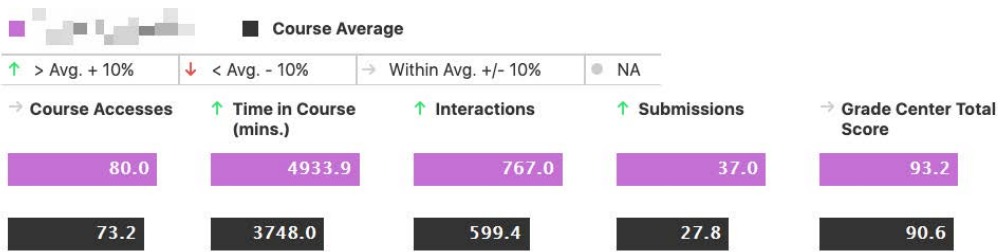
Interactions Average vs Department Average



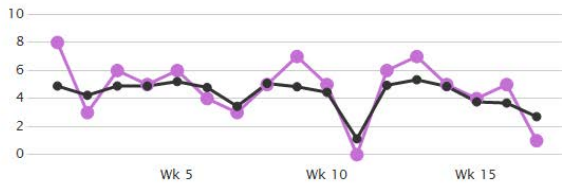
Minutes Average vs Department Average



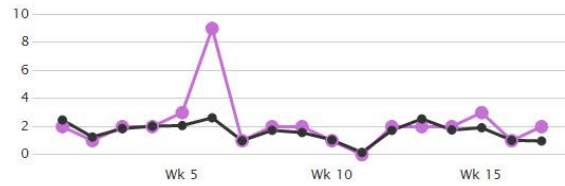
Activity and Grade Scatter Plot: This report plots the distribution of student activity against their grades in this course.



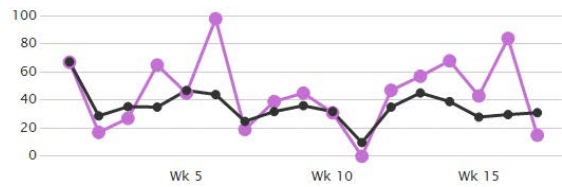
Accesses vs Course Average



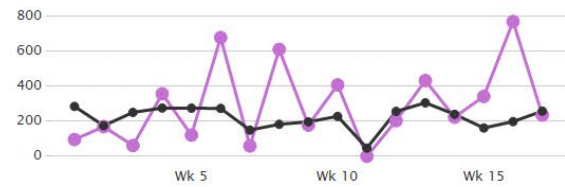
Submissions vs Course Average



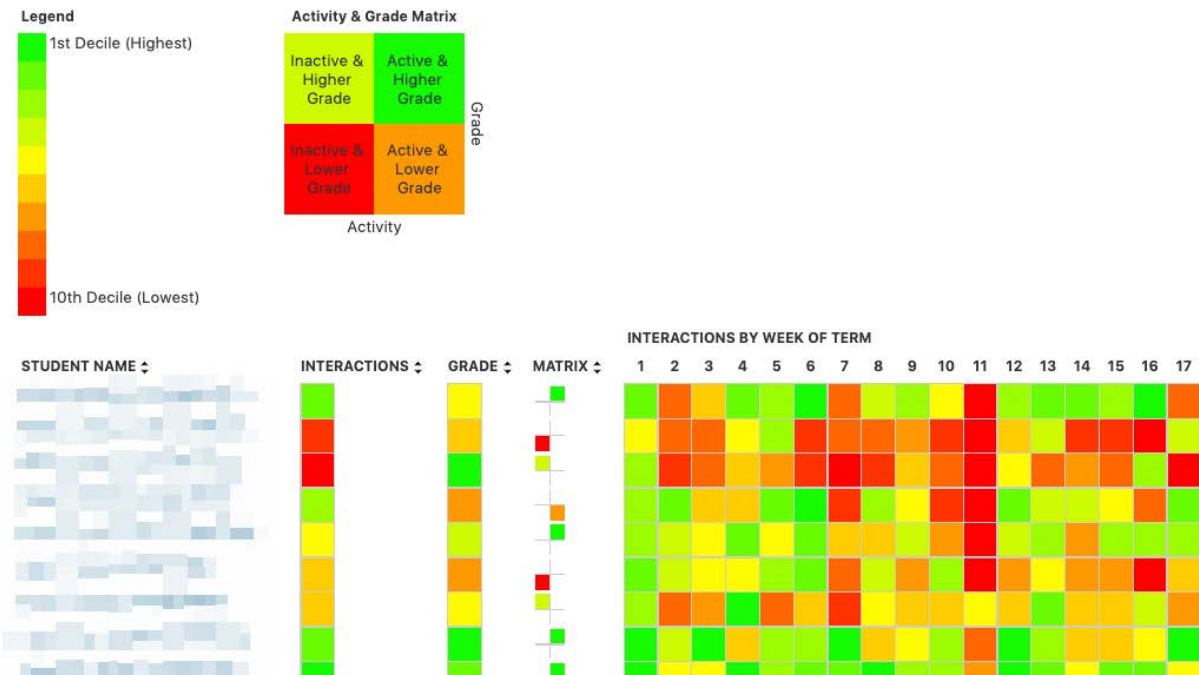
Interactions vs Course Average



Time in Course vs Course Average



Activity Matrix: View a representation of student activity in this course.



Course Submission Summary: View a summary of user submissions for this course.

STUDENT NAME ↕	ENROLL STATUS	SUBMISSIONS				
		STUDENT ↕	AVG	DATE OF LAST SUBMISSION	DAYS SINCE LAST SUBMISSION	LAST SUBMISSION TYPE
[REDACTED]	Enrolled	17 ↓	21.9	12/18/2020	490	SafeAssignment
[REDACTED]	Enrolled	25 ↑	21.9	12/18/2020	490	SafeAssignment
[REDACTED]	Enrolled	22 →	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	16 ↓	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	27 ↑	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	26 ↑	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	20 →	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	20 →	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	27 ↑	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	22 →	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	25 ↑	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	15 ↓	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	25 ↑	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	17 ↓	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	27 ↑	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	30 ↑	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	26 ↑	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	26 ↑	21.9	12/17/2020	491	SafeAssignment
[REDACTED]	Enrolled	27 ↑	21.9	12/16/2020	492	SafeAssignment
[REDACTED]	Enrolled	24 →	21.9	12/16/2020	492	SafeAssignment

3. Blackboard Learn Logs

Extensive logs are generated within Blackboard Learn.

We are currently ingesting Blackboard gzipped JSON log files directly into Splunk. I will be configuring and evaluating Microsoft Log Analytics this summer.

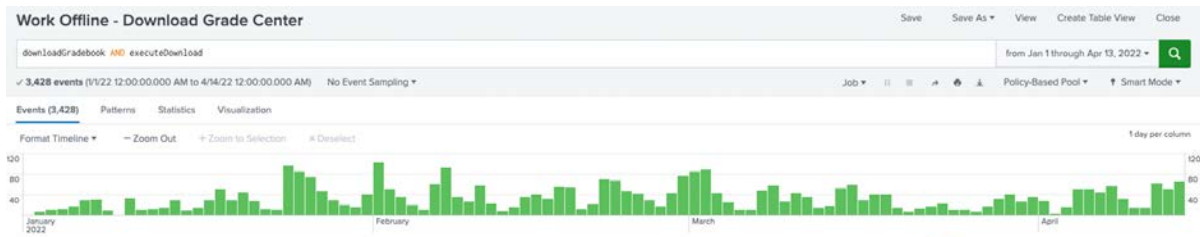
Logs can be downloaded via Content Collection --> Internal --> Logs.

System Admin --> Logs > System Logs has information on converting the logs to a more human readable format using a Python script. This will break the JSON into individual log files similar to Self and Managed Hosting log formats.

I analyze the logs for a number of purposes, primarily looking at Tomcat Access, Authentication, and Email logs.

Some of the more common requests:

- Academic Integrity / User Activity Reports
- Trace errors and system messages
- Usage reports
 - Older Web Browsers
 - Tool Launches (deprecations, for example)
 - Ally click-throughs
 - Help Desk Chat launches
 - Instructors who downloaded their grade center



3a. Logs: Authentication Logs

- When did they login?
- When did they logout?
- Did they logout or was their session automatically expired after ~ 3 hours?
- GUI version contains only recent events.
- Back-end authentication log contains historic data

Event Type	Type	Username	IP Address	Date	Provider Name
LOGIN		bbhelp	72.204.18.98	Jul 6, 2016 2:21:59 PM CDT	ds.uark.edu
LOGIN		bbhelp	130.184.24.249	Jul 6, 2016 10:35:02 AM CDT	ds.uark.edu
LOGOUT	Session Expired	bbhelp		Jul 1, 2016 1:38:25 PM CDT	ds.uark.edu
LOGIN		bbhelp	72.204.18.98	Jul 1, 2016 7:27:57 AM CDT	ds.uark.edu
LOGOUT	Session Expired	bbhelp		Jun 30, 2016 6:38:30 PM CDT	ds.uark.edu
LOGOUT	Session Expired	bbhelp		Jun 30, 2016 6:38:20 PM CDT	ds.uark.edu
LOGIN		bbhelp	72.204.18.98	Jun 30, 2016 3:01:26 PM CDT	ds.uark.edu
LOGIN		bbhelp	130.184.253.73	Jun 30, 2016 9:01:01 AM CDT	ds.uark.edu
LOGOUT	Session Expired	bbhelp		Jun 29, 2016 8:38:19 PM CDT	ds.uark.edu
LOGOUT	Session Expired	bbhelp		Jun 29, 2016 7:38:15 PM CDT	ds.uark.edu
LOGIN		bbhelp	72.204.18.98	Jun 29, 2016 4:39:21 PM CDT	ds.uark.edu
LOGIN		bbhelp	130.184.24.249	Jun 29, 2016 10:34:22 AM CDT	ds.uark.edu

Event Type	Type	Username	IP Address	Date	Provider Name
LOGOUT	Manual Logout	cbray	130.184.253.74	Jul 1, 2016 8:40:57 AM CDT	ds.uark.edu
LOGIN		cbray	130.184.253.74	Jul 1, 2016 8:40:45 AM CDT	ds.uark.edu
LOGOUT	Manual Logout	cbray	130.184.253.74	Jun 28, 2016 4:10:27 PM CDT	ds.uark.edu
LOGIN		cbray	130.184.253.74	Jun 28, 2016 3:01:55 PM CDT	ds.uark.edu

Clicking on an Event Type will returned detailed information about the session:

Event: Login

Username: bbhelp

IP Address: 130.184.24.249

Date: Jul 6, 2016 10:35:02 AM CDT

Provider Name: ds.uark.edu

Appserver Id: fgprd-210018-152896-app006.mhint

Destination Server: learn.uark.edu

User Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.11; rv:47.0) Gecko/20100101 Firefox/47.0

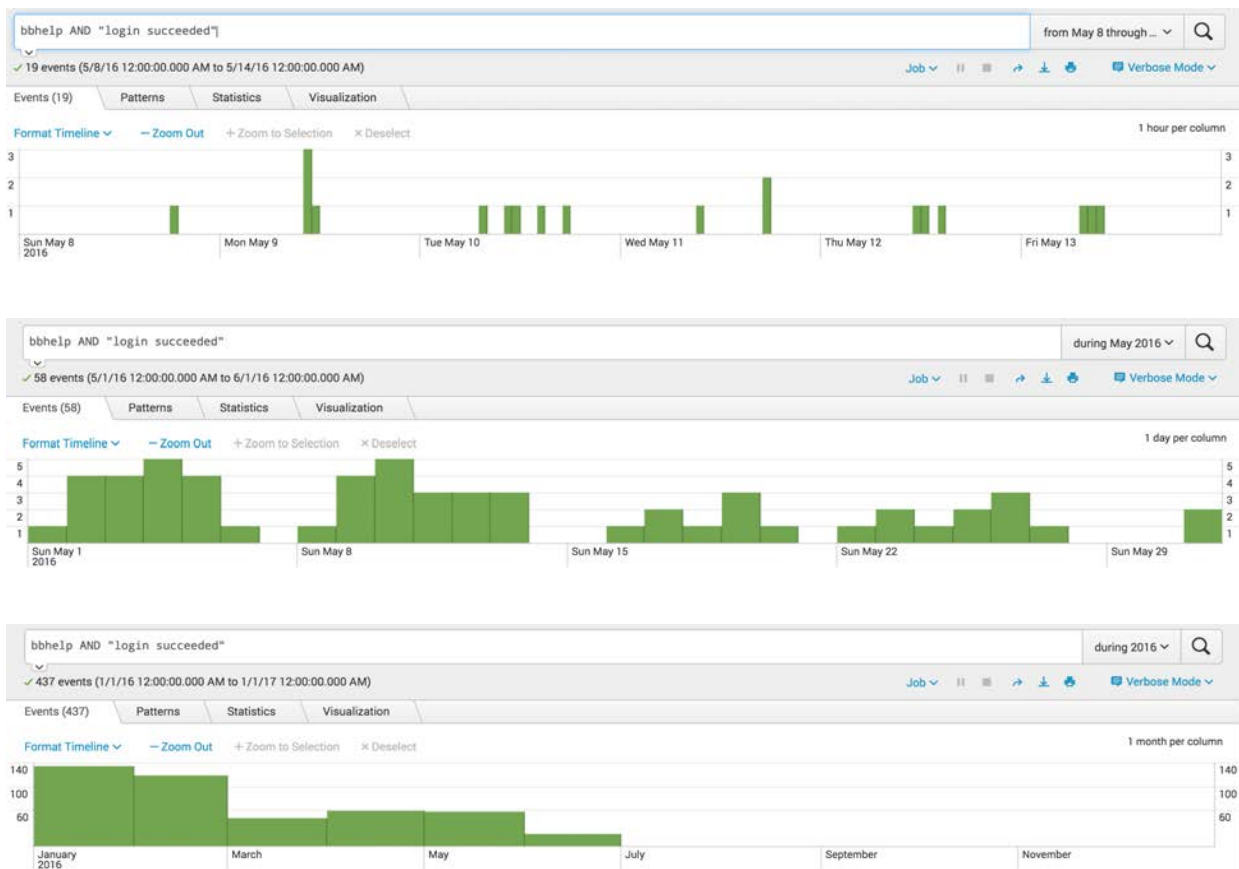
Log Message:

timestamp=Jul 06 2016 10:35:02.296 CDT|app_vend=blackboard|app_name=learn|app_ver=9.1.201510.1171621|evt_code=0|evt_name=login succeeded|sev=0|cat=authent

ication|authnprovider=_124_1|dhost=learn.uark.edu|outcome=success|src_ip=130.184.24.249|duid=_185572_1|duser=bbhelp|text=login succeeded|authnmethod=login page|http_useragent=Mozilla/5.0 (Macintosh; Intel Mac OS X 10.11; rv:47.0) Gecko/20100101 Firefox/47.0

Splunk View:

My authentication logs are also sent into Splunk, so I can search for a username (or pk1) and see the logins:



3b. Logs: Attached File to Assignment

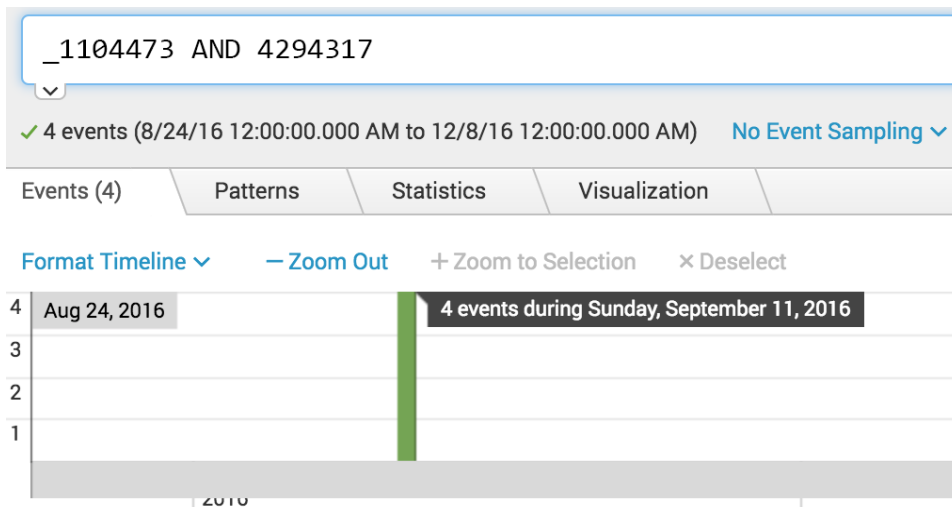
I had an assignment 3 due on blackboard for my Art Lecture class (ARHS 1003) and I submitted it but I guess there was an issue and my teach never received the submission. I called blackboard tech and they said that I might of just exited out too early before it processing all the way. My teacher just needs proof that I actually tried submitting the assignment! So if you could just email me back saying you checked and say I tired submitting it or did that would be great!

janedoe
user_id=_1104473

MASTER-1169-THEUA-ARHS-1003-SEC902
course_id=_126286

Assignment #3: content_id=_4294317
Due 09/11/2016 11:59 PM

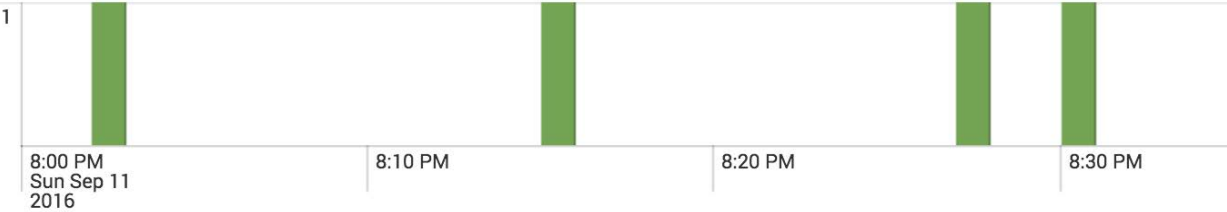
Clicks on Assignment #3:



✓ 4 events (9/11/16 8:00:00.000 PM to 9/11/16 9:00:00.000 PM) No Event Sampling ▾

Events (4) Patterns Statistics Visualization

Format Timeline ▾ - Zoom Out + Zoom to Selection × Deselect



```
98.186.92.254 172.16.120.124 connector-46 [11/Sep/2016:20:30:04 -0500] "GET /webapps/assignment/uploadAssignment?course_id=_126286_1&content_id=_4294317_1&mode=view HTTP/1.1" 200 21796 "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_11_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/52.0.2743.116 Safari/537.36" "JSESSIONID=A56FD567506C2DD732AD0B8358409BCC; NSC_210018_wjq_69.196.229.112*443=ffffffff090d190c45525d5f4f58455e445a4a4229a0; JSESSIONID=68E2D0BFF3BF46E4CB86D1F7DD5219A8; web_client_cache_guid=0d81f622-de74-4876-b6a8-6c820b588820; __utmt=1; wl_auth=client_id=000000004C110F3E&status=notConnected; __utma=65023795.499763241.1473285465.1473642045.2; __utm=65023795.22.10.1473642045; __utmc=65023795; __utmz=65023795.1.1.utmcsr=(direct)|utmccn=(direct)|utmcmd=(none); session_id=73BF5E63E084311E02E01B50B45DBA32; s_session_id=0869659E4FFF21D3D0A9BF1E7E34DBB2" 455 21796

98.186.92.254 172.16.120.124 connector-31 [11/Sep/2016:20:27:05 -0500] "GET /webapps/assignment/uploadAssignment?content_id=_4294317_1&course_id=_126286_1&assign_group_id=&mode=view HTTP/1.1" 200 26056 "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_11_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/52.0.2743.116 Safari/537.36" "JSESSIONID=A56FD567506C2DD732AD0B8358409BCC; NSC_210018_wjq_69.196.229.112*443=ffffffff090d190c45525d5f4f58455e445a4a4229a0; JSESSIONID=68E2D0BFF3BF46E4CB86D1F7DD5219A8; web_client_cache_guid=0d81f622-de74-4876-b6a8-6c820b588820; __utmt=1; wl_auth=client_id=000000004C110F3E&status=notConnected; __utma=65023795.499763241.1473285465.1473285465.1473642045.2; __utmb=65023795.21.10.1473642045; __utmc=65023795; __utmz=65023795.1473285465.1.1.utmcsr=(direct)|utmccn=(direct)|utmcmd=(none); session_id=73BF5E63E084311E02E01B50B45DBA32; s_session_id=0869659E4FFF21D3D0A9BF1E7E34DBB2" 399 26056

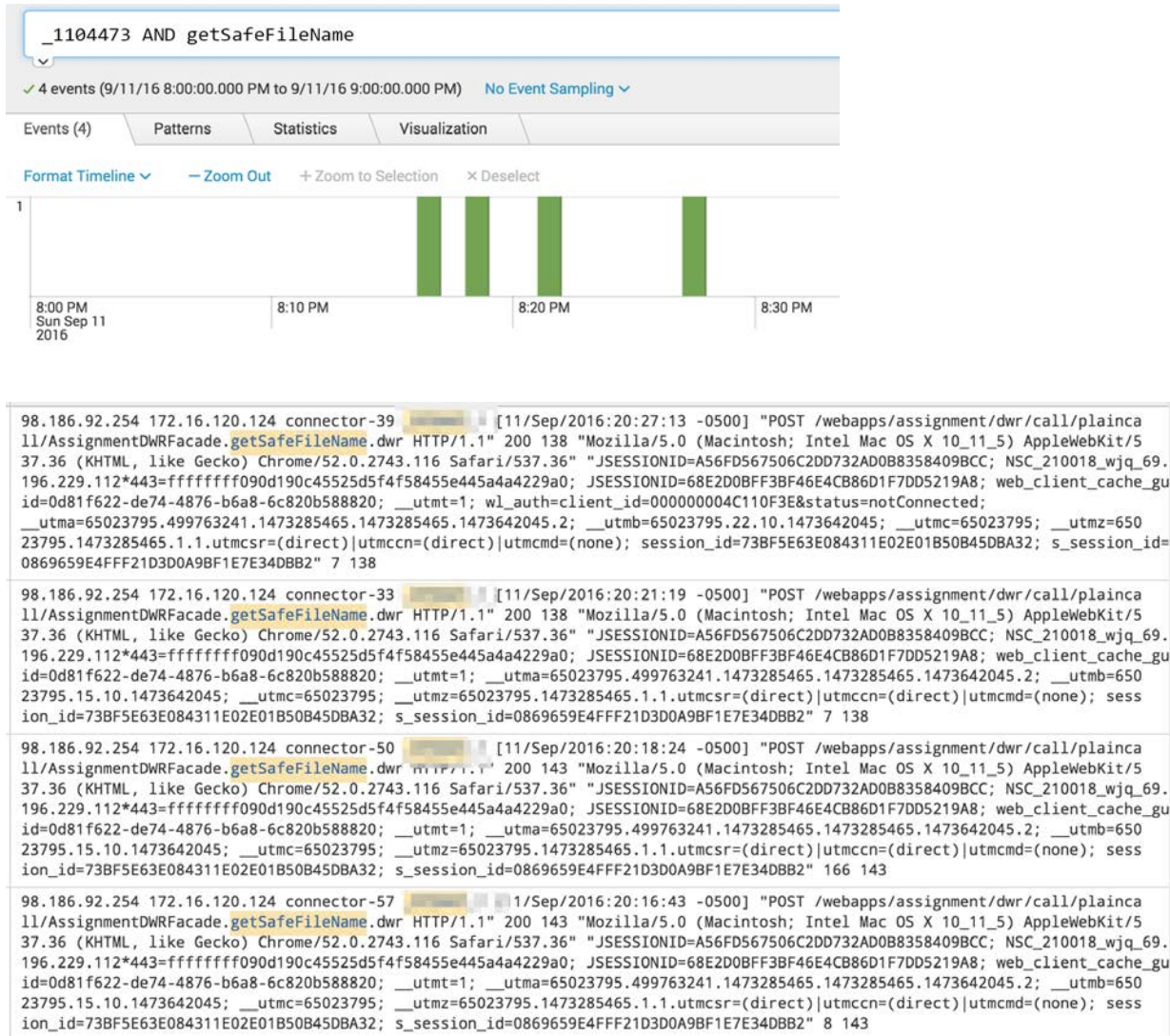
98.186.92.254 172.16.120.124 connector-59 [11/Sep/2016:20:15:42 -0500] "GET /webapps/assignment/uploadAssignment?content_id=_4294317_1&course_id=_126286_1&assign_group_id=&mode=view&mode=view HTTP/1.1" 200 26049 "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_11_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/52.0.2743.116 Safari/537.36" "JSESSIONID=A56FD567506C2DD732AD0B8358409BCC; NSC_210018_wjq_69.196.229.112*443=ffffffff090d190c45525d5f4f58455e445a4a4229a0; JSESSIONID=68E2D0BFF3BF46E4CB86D1F7DD5219A8; web_client_cache_guid=0d81f622-de74-4876-b6a8-6c820b588820; __utma=65023795.499763241.1473285465.1473285465.1473642045.2; __utmb=65023795.14.10.1473642045; __utmc=65023795; __utmz=65023795.1473285465.1.1.utmcsr=(direct)|utmccn=(direct)|utmcmd=(none); session_id=73BF5E63E084311E02E01B50B45DBA32; s_session_id=0869659E4FFF21D3D0A9BF1E7E34DBB2" 250 26049

98.186.92.254 172.16.120.124 connector-7 [11/Sep/2016:20:02:54 -0500] "GET /webapps/assignment/uploadAssignment?content_id=_4294317_1&course_id=_126286_1&assign_group_id=&mode=view&mode=view HTTP/1.1" 200 26056 "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_11_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/52.0.2743.116 Safari/537.36" "NSC_210018_wjq_69.196.229.112*443=ffffffff090d190c45525d5f4f58455e445a4a4229a0; JSESSIONID=68E2D0BFF3BF46E4CB86D1F7DD5219A8; __utmt=1; web_client_cache_guid=0d81f622-de74-4876-b6a8-6c820b588820; __utma=65023795.499763241.1473285465.1473642045.2; __utmb=65023795.11.10.1473642045; __utmc=65023795; __utmz=65023795.1473285465.1.1.utmcsr=(direct)|utmccn=(direct)|utmcmd=(none); session_id=73BF5E63E084311E02E01B50B45DBA32; s_session_id=0869659E4FFF21D3D0A9BF1E7E34DBB2" 248 26056
```

After pressing "Browse My Computer" in an Assignment, and selecting a file, the system outputs the following to the tomcat access log:

```
"POST /webapps/assignment/dwr/call/plaincall/AssignmentDWRFacade.getSafeFileName.dwr HTTP/1.1"
```

Attached files to an assignment:



4. DDA (Direct Data Access)

Direct Data Access (DDA) is the SaaS equivalent of the Open Database (OpenDB) Initiative.

With Direct Data Access, you can query a near real-time replica of your Learn database whenever you need to. Support staff can troubleshoot issues; academic staff can collect data about adoption, use, and the efficacy of certain initiatives; and

leadership can use real data to evaluate return on investment and make data-supported decisions.

Some of my more common queries involve

- User
 - Student activity in system/courses
 - User cleanup (to remove user accounts who left the university, and are not enrolled in courses)
- Enrollments
 - Enrollment history
 - Expired user accounts to remove from general courses (ie. tutorial course)
- Course
 - Finding specific links or text within menus or content items
 - End-of-term course cleanup - remove unused courses from the system
 - Combined courses (to use with end-of-term Grades Journey processes)
- Overall System
 - Tool counts (useful when moving from B2 to LTI)
 - Large files and courses
 - Media files in courses, to transfer to Kaltura
 - Attempt counts per year
- Grades & Attempts
 - Specific grade center columns across multiple courses, including student information and grades
 - Cumulative student activity in a specific course, also returning College, Department, and Education Level
 - Typed assignment responses for First-Year onboarding course
 - Assignments using SafeAssign (or any specific tool)
 - IP Searches - Who submitted from specific IP addresses, who took an in-class exam off campus?
 - Completion status of SCORM modules for TITLE IX reporting (and enrollment holds)
 - Assessments with Force Completion
 - Grade Center columns / Goal Alignments (used for GenEd Outcomes)

Metrics, example:

Attempts per year:

Tool	2017	2018	2019	2020	2021	SCORE_PROVIDER_HANDLE
[NULL]			2,752,422	1,867,357	1,665,447	[NULL]
Non-Assigned *	2,624,205	2,867,048	n/a	n/a	43,359	none
Publisher - McGraw-Hill	316,493	324,976	328,666	332,608	324,937	resource/mcgraw-hill-assignment
Assessment	1,172,756	1,321,802	1,378,456	2,069,286	1,938,123	resource/x-bb-assessment
Survey	24,737	23,091	16,963	31,150	34,043	resource/x-bb-assessment-survey
Assignments	716,746	768,457	857,948	1,405,422	1,458,840	resource/x-bb-assignment
Attendance		2	6,219	15,116	12,355	resource/x-bb-attendance
Blogs (& Journals)	54,957	54,111	61,594	94,816	96,019	resource/x-bb-bloglink
LTI (External Tools)	169	17,544	20,757	24,336	72,834	resource/x-bb-blti-link
Discussions	102,258	114,563	143,250	240,465	240,046	resource/x-bb-forumlink
Wiki	9,760	2,441	5,016	5,507	3,954	resource/x-bb-wiki
Publisher - Partner Cloud (Generic)		713	381	n/a	142,863	resource/x-bbgs-partner-cloud
Self-Peer Assessments	239	331	25	0	433	resource/x-bbpi-selfpeer
Publisher - Cengage	65,769	108,803	90,862	128,305	n/a	resource/x-cengage-mindlinks
SCORM	21,684	1,061	825	1,145	16,071	resource/x-plugin-scormengine
Publisher - Wiley	3,291	5,097	4,163	6,167	2,507	resource/x-wileyplus-materials
Pearson (in Non-Assigned)						
Total Attempts/Grades in Blackboard	5,109,773	5,610,040	5,667,547	6,221,680	6,051,831	
* Non-Assigned includes Pearson, Manually entered grades, grades entered through the Work Offline function, TurningPoint "Clickers", etc...						

Courses and enrollments per year:

Term Name	Term Start Date	Term End Date	Enrollment Count	Unique Student	Unique Instructor	f2f Courses	Online Course	Total Courses
Fall 2010 [1109]	20100823	20101215	77,549	19,984	1,005	1,941	329	2,270
Spring 2011 [1113]	20110118	20110514	70,142	18,640	953	1,809	347	2,156
Summer 2011 [1116]	20110523	20110812	9,734	5,249	327	388	195	583
Fall 2011 [1119]	20110822	20111217	81,378	20,724	1,101	2,127	346	2,473
Spring 2012 [1123]	20120123	20120518	78,571	19,592	1,153	2,142	364	2,506
Summer 2012 [1126]	20120518	20120817	11,387	5,938	397	457	209	666
Fall 2012 [1129]	20120820	20121215	95,876	22,498	1,279	2,580	330	2,910
Spring 2013 [1133]	20130114	20130511	89,216	21,046	1,309	2,426	332	2,758
Summer 2013 [1136]	20130528	20130802	12,853	6,775	438	512	207	719
Fall 2013 [1139]	20130826	20131221	109,744	23,323	1,461	2,934	413	3,347
Spring 2014 [1143]	20140113	20140509	98,719	21,924	1,387	2,661	425	3,086
Summer 2014 [1146]	20140527	20140801	14,287	7,570	506	537	261	798
Fall 2014 [1149]	20140825	20141219	115,627	24,421	1,591	3,129	474	3,603
Spring 2015 [1153]	20150112	20150508	101,466	22,610	1,522	2,832	462	3,294
Summer 2015 [1156]	20150526	20150831	14,591	7,734	532	592	283	875
Fall 2015 [1159]	20150824	20151219	113,698	25,161	1,811	3,726	498	4,224
Spring 2016 [1163]	20160119	20160514	86,598	22,751	1,820	2,769	426	3,195
Summer 2016 [1166]	20160531	20160806	15,261	8,329	616	693	315	1,008
Fall 2016 [1169]	20160822	20161217	117,752	25,678	1,821	3,863	519	4,382
Spring 2017 [1173]	20170117	20170513	94,336	23,409	1,619	3,371	529	3,900
Summer 2017 [1176]	20170530	20170805	14,816	8,183	635	668	395	1,063
Fall 2017 [1179]	20170821	20171216	121,663	26,123	1,869	3,977	593	4,570
Spring 2018 [1183]	20180116	20180512	107,227	24,538	1,800	3,672	718	4,390
Summer 2018 [1186]	20180529	20180803	15,497	8,486	638	620	475	1,095
Fall 2018 [1189]	20180820	20181215	121,644	26,443	1,942	4,066	690	4,756
Spring 2019 [1193]	20190114	20190511	108,452	24,553	1,841	3,665	729	4,394
Summer 2019 [1196]	20190528	20190802	15,429	8,443	595	568	512	1,080
Fall 2019 [1199]	20190826	20191212	114,762	25,967	1,839	3,776	738	4,514
Spring 2020 [1203]	20200102	20200507	105,533	27,065	2,037	3,630	848	4,478
Summer 2020 [1206]	20200511	20200731	17,358	9,030	708	567	628	1,195
Fall 2020 [1209]	20200803	20201217	119,506	26,613	2,021	4,175	870	5,045
Spring 2021 [1213]	20210102	20210506	113,507	25,123	2,042	4,122	904	5,026
Summer 2021 [1216]	20210510	20210730	15,100	8,352	649	592	583	1,175
Fall 2021 [1219]	20210802	20211216	146,268	29,004	2,327	6,049	994	7,043

Development courses with last access date and total size

course_id	dtcreated	last_access	Total Size (MB)
dev.	10/2/20 3:07 PM	3/14/22 3:05 PM	7607
dev.	1/3/19 2:34 PM	2/23/22 4:53 PM	6796
dev.	5/3/19 1:36 PM	1/6/21 11:36 AM	5697
sanc	9/10/10 11:51 AM	3/23/22 1:51 AM	5344
dev.	3/30/20 10:35 AM	4/14/22 9:01 AM	4804
Bob	10/15/15 10:18 AM	3/31/22 9:53 AM	4544
dev.	5/24/16 2:48 PM	10/5/16 11:34 AM	3486
dev.	10/14/20 10:26 AM	3/31/22 9:58 AM	3218
SCO	11/17/15 9:37 AM	7/28/20 11:06 AM	3163
dev.	3/27/17 12:26 PM	1/14/21 9:27 AM	3118
dev.	9/22/20 11:05 AM	2/15/22 10:18 PM	3056
Dev.	9/18/14 11:44 AM	1/31/22 3:37 PM	2955
dev.	4/27/15 2:58 PM	10/1/20 4:39 PM	2939
dev.	9/4/12 3:02 PM	11/10/21 1:43 PM	2729
dev.	5/24/16 2:48 PM	8/17/16 3:24 PM	2719
dev.	12/15/14 9:44 AM	8/18/15 3:43 PM	2646
Dev.	3/11/19 10:12 AM	5/19/21 11:35 AM	2569
dev.	3/31/15 9:54 AM	5/15/15 12:50 PM	2397
dev.	8/10/20 2:51 PM	12/1/21 4:06 PM	2306
dev.	7/6/16 10:17 AM	10/14/18 8:06 AM	2228
dev.	7/1/13 2:13 PM	1/18/16 2:57 PM	2002
dev.	12/14/11 3:07 PM	4/19/14 6:02 AM	1866
dev.	5/13/15 11:02 AM	4/19/21 12:22 PM	1848
sanc	7/27/12 4:15 PM	1/24/22 12:36 PM	1786
dev.	6/5/18 1:45 PM	1/30/21 10:52 AM	1724
dev.	4/27/15 2:58 PM	9/30/20 10:11 PM	1694
dev.	3/12/20 5:00 PM	7/8/20 2:41 PM	1529
dev.	11/13/18 1:15 PM	2/9/22 11:10 AM	1518
dev.	4/6/15 2:44 PM	4/22/15 11:13 AM	1454

Largest files in system

A	B	C	D	E	F	
blob_id	file_id	file_name	size_mb	last_update_date	mime_type	full_path
18374997	122815336	IMG_5435.M	2453	12/10/21 12:51	video/quicktime	/internal/
14000976	112039297	IMG_0968.M	2449	4/14/21 23:26	video/quicktime	/internal/
12847598	108577973	Practica Oral	2426	2/5/21 18:38	video/quicktime	/internal/
14266378	112935937	finalcollectio	2363	4/29/21 17:09	application/vnd.openxmlformats-officedocur	/internal/
14072331	112263423	Cs Session 3	2344	4/19/21 14:23	video/quicktime	/internal/
18067996	121769548	FullSizeRend	2341	11/20/21 7:37	video/quicktime	/internal/
14230275	112801598	woolford Mu	2326	4/28/21 0:02	video/x-msvideo	/internal/
10174560	96268095	Shotgun.mp4	2278	4/28/20 1:56	video/mp4	/internal/
9154387	90936049	Spanish vide	2262	12/1/19 16:01	video/quicktime	/internal/
17798082	120821430	RPReplay_Fi	2240	11/2/21 17:55	video/quicktime	/internal/
13989593	112011156	Play Session	2223	4/14/21 15:03	video/quicktime	/internal/
9493593	93066441	CNED 3053.n	2198	2/4/20 13:52	video/quicktime	/courses/
17506018	119881626	NWEA MAP	2194	10/14/21 14:37	video/quicktime	/internal/
14278124	112970535	health comrr	2192	4/30/21 0:00	video/mp4	/internal/
14278124	112970256	health comrr	2192	4/30/21 0:13	video/mp4	/internal/
14117927	112428333	IMG_0022.M	2183	4/21/21 20:51	video/quicktime	/internal/
13083302	109301558	20210218_2:	2168	2/19/21 0:28	video/mp4	/internal/
11967164	104946518	Group5Dillar	2161	11/27/20 16:04	application/zip	/internal/
14024092	112116757	IMG_6174.m	2122	4/16/21 12:55	video/quicktime	/internal/
17076421	118426127	Simulation 2	2095	9/17/21 22:14	video/quicktime	/internal/

Courses using the same large files (migrate to Kaltura):

blob_id	file_id	file_name	size_mb	last_update_date	mime_type	full_path
5782544	107068633	Chapter.9.voiceVideo.mp4	660	1/5/21 17:35	video/mp4	/courses/1213-THEL
5782544	92526542	Chapter.9.voiceVideo.mp4	660	1/10/20 15:30	video/mp4	/courses/1203-THEL
5782544	94394207	Chapter.9.voiceVideo.mp4	660	3/13/20 20:19	video/mp4	/courses/1203-THEL
5782544	97507943	Chapter.9.voiceVideo.mp4	660	6/4/20 9:39	video/mp4	/courses/1206-THEL
7968894	98772158	Blockchain Interview_8-29_1 (1) (1).mp4	1134	8/21/20 18:42	video/mp4	/courses/1209-THEL
7968894	106676049	Blockchain Interview_8-29_1.mp4	1134	12/23/20 4:12	video/mp4	/courses/1189-THEL
7968894	92532320	Blockchain Interview_8-29_1 (1) (1).mp4	1134	1/10/20 23:31	video/mp4	/courses/1203-THEL
7968894	98771745	Blockchain Interview_8-29_1 (1) (1).mp4	1134	8/21/20 18:41	video/mp4	/courses/1209-THEL
8029135	98738060	January 30 Lecture on Basting Stitches.mp4	930	8/20/20 16:41	video/mp4	/courses/MASTER-1
8029135	87336043	January 30 Lecture on Basting Stitches.mp4	930	9/4/19 12:04	video/mp4	/courses/MASTER-1
8029135	86199281	January 30 Lecture on Basting Stitches.mp4	930	6/12/19 13:22	video/mp4	/courses/1199-THEL
8029135	92443841	January 30 Lecture on Basting Stitches.mp4	930	1/6/20 14:02	video/mp4	/courses/MASTER-1
9287803	92333328	33.mp4	663	12/25/19 5:29	video/mp4	/internal/courses/e/
9287803	92295647	33.mp4	663	12/25/19 4:59	video/mp4	/internal/courses/1/
9287803	92310629	33.mp4	663	12/25/19 5:10	video/mp4	/internal/courses/B/
9287803	92316946	33.mp4	663	12/25/19 5:15	video/mp4	/internal/courses/S/
9287803	102327094	33.mp4	663	10/14/20 10:30	video/mp4	/internal/courses/d/

5. Blackboard Data

"Blackboard Data is a single unified data source for all your Blackboard products and services. Blackboard Data gives you access to the data you need to take the right action at the right time."

Currently has collected data on:

- Blackboard Learn (a subset of data from DDA)
- Blackboard Collaborate

- "Telemetry" events (Ally, SafeAssign, Collaborate, Tools, etc)

Two levels of access:

1. Insights / Reporting - Pre-Made reports
 1. Learning: reports on student activity, engagement, and performance.
 2. Teaching: reports on instructional practices and course design.
 3. Leading: reports on institutional administration, efficiency, and success.
2. Developer (SQL using Snowflake Computing)

There are some good user groups for both levels within the Blackboard Community site, with regular online Office Hours.

Developer examples

Top 10 largest courses (includes deleted rows)

```

1 -- Top courses with most files and storage usage
2 select
3   cou_id as "Blackboard Data ID",
4   cou_row_deleted_time as "Deleted",
5   cou_source_id as "Learn Course ID",
6   cou_name as "Course Name",
7   cou_course_number as "Course Number",
8   coalesce(sum(coi.file_cnt), 0) as "Total File Count",
9   coalesce(sum(coi.file_size_sum)/1000000000, 0) as "Total File Size Sum GB"
10 from cdm_lms.course as cou
11 join cdm_lms.course_item as coi
12   on coi.course_id = cou_id
13 group by
14   cou_id,cou_row_deleted_time,
15   cou_source_id,
16   cou_name,
17   cou_course_number
18 order by "Total File Size Sum GB" DESC
19 limit 10 -- Change to the number of courses you'd like to see

```

Results Data Preview Open History

Query ID SQL 1.79s 10 rows

Filter result... Download Copy Columns ▾

Row	Blackboard Data ID	Deleted	Learn Course ID	Course Name	Course Number	Total File Count	Total File Size Sum GB
1	26915	2021-06-03 04:26:29.512 -...	126073	GNEG 1322H - HNRS RESE...	1173-THEUA-GNEG-1322H...	56	18.634626
2	24537	2021-06-03 04:26:29.512 -...	115434	GNEG 1301H - HNRS RESE...	1169-THEUA-GNEG-1301H...	29	18.620243
3	89566	NULL	280706	ACCT 4963 - AUDIT AND A...	1213-THEUA-ACCT-4963-...	242	13.923943
4	103719	NULL	291830	COMBINED BIOL 5254 - C...	MASTER-1209-THEUA-BIO...	36	13.877487
5	103233	NULL	291833	COMBINED BIOL 5254 - C...	MASTER-1209-THEUA-BIO...	36	13.877487
6	23921	2021-06-03 04:26:29.512 -...	112957	GNEG 1515 - ENGR APPLIC...	1169-THEUA-GNEG-1515-S...	113	12.595846
7	95710	NULL	284758	HIST 3443 - MODERN IMP...	1213-THEUA-HIST-3443-S...	122	11.388685
8	68764	NULL	250920	HIST 3443 - MODERN IMP...	1203-THEUA-HIST-3443-S...	105	11.382593
9	41314	2021-06-03 04:26:29.512 -...	142281	PSYC 5043 - ASSMT INTEL...	1179-THEUA-PSYC-5043-S...	189	11.109679
10	51263	2022-02-01 03:25:48.644 ...	200576	PSYC 5043 - ASSMT INTEL...	1189-THEUA-PSYC-5043-...	201	11.093360

I'm currently working on deleting or migrating (to Kaltura) all of our Collaborate Ultra recordings.

This uses Collaborate recording information from Bb Data. I can use this in a script that uses REST to pass the Collaborate recording URL to Kaltura, for behind-the-scenes transfer.

Row	TERM_NAME	COURSE_ID	COURSE_NAME	ROOM_NAME	PUBLIC_ACCESS	INSTRUCTORS	INSTRUCTORS_	COLLAB_REC	BBDATA_REC	RECORDING_NA	RECORDING_DL	RECORDING_SIZ	RECORDING
1	Fall 2020 [12...	1209-THEU...	BMEG 3124 ...	Lecture 22	TRUE	Narasimhan ...	nrajaram@u...	*3197cea80...	305888247	recording_1	40.70	206.69	2020-11-19
2	Spring 2021 ...	1213-THEUA...	INEG 410V - ...	INEG 410V - ...	TRUE	Sandra Eksi...	sandra@uar...	*c86281ca7...	251878317	recording_5	74.72	263.09	2021-01-26
3	Fall 2020 [12...	1209-THEU...	PSYC 3103 - ...	Classroom L...	TRUE	Maximilian F...	mf020@uar...	*e9e45ae82...	186137082	recording_33	33.07	102.08	2020-12-05
4	Spring 2021 ...	1213-THEUA...	MGMT 4243...	Chapter 7 (2...	TRUE	Marie Halvor...	mhalvors@u...	*6actbfce74...	105402629	recording_1	48.60	162.67	2021-03-16
5	Spring 2020 ...	1203-THEU...	JOUR 3013 - ...	Wednesday ...	TRUE	Ray Minor	rayminor@u...	*bd57c8c66...	194502712	recording_1	78.08	148.04	2020-03-18
6	Fall 2020 [12...	1209-THEU...	SPAN 1003 - ...	SPAN 1003-...	TRUE	Michael Her...	mh055@uar...	*d3ceb64b8...	3592680	recording_3	35.48	228.32	2020-09-14
7	Non-Credit ...	GCNC-RGRS...	Java Develo...	7-6-20	TRUE	Mark Berko...	futch@uar...	*2019e315f0...	85641073	recording_1	135.02	751.01	2020-07-01
8	Fall 2020 [12...	MASTER-12...	COMBINED ...	Lecture 12, ...	TRUE	Noah Billig	nsbillig@u...	*6757ed88...	221823252	recording_1	47.90	173.48	2020-09-20
9	Fall 2020 [12...	1209-THEU...	BIOL 1541L - ...	POB Lab 8 - ...	TRUE	Timothy Goo...	tgoodhar@u...	*4479e7b82...	257720827	recording_1	35.90	115.21	2020-11-12
10	Non-Credit ...	1203-BIOL-1...	BIOL 1541L L...	Prep Meetin...	TRUE	Lora Shadwi...	lalindf@uar...	*fe9a25632...	115511247	POB Instruct...	69.73	269.76	2020-04-01
11	Non-Credit ...	NSO-2020-...	Orientation J...	Questions & ...	TRUE	Salma Alons...	fdg001@uar...	*14d092534...	113159282	recording_1	33.03	135.47	2020-06-21
12	Fall 2020 [12...	1209-THEU...	ECON 2023 ...	Class 24	TRUE	Ahmed Yousof	asyousof@u...	*dcbd64a09...	121818343	recording_1	61.43	312.52	2020-11-17
13	Summer 202...	1206-THEU...	PHIL 2203 - ...	PHIL 2203 - ...	TRUE	Barry Ward	bmward@ua...	*53125452a...	176523807	recording_16	39.02	76.77	2020-06-18
14	Fall 2021 [12...	1219-THEUA...	CSCS 5063 ...	Lecture	TRUE	Lu Zhang, Xi...	xintaowu@u...	*7e56c5321...	5795876265...	recording_5	53.15	177.07	2021-09-01
15	Non-Credit ...	1196-UAMS-...	HPMT 5103 ...	Week 5: Out...	NULL	Stephen Bo...	smb035@ua...	*63552b97c...	88465274	recording_1	87.87	201.57	2019-06-30
16	Spring 2021	1213-THEU...	CVEG 4423	1-10-2021	TRUE	Natalia Beck	nheck@uar...	*3h8a84911	33767192757	recording_18	87.55	184.69	2021-04-21

I also have a Learn LTI Course Tool for instructors to send Collaborate recordings directly to Kaltura, using REST.

Both were written by Heather Crites at CSCC.

Upload Collaborate Recordings to Kaltura My Media

Recording Name	Created	Duration	Last Accessed	My Media Status	Chat Download
SECTION 7 CLASS LINK - recording_13	10/2/2020 4:51 PM	41.53 minutes	12/24/2021 3:13 PM	Uploaded	download
SECTION 7 CLASS LINK - recording_15	10/9/2020 4:53 PM	46.57 minutes	11/2/2020 7:31 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_7	9/18/2020 4:50 PM	66.7 minutes	10/13/2020 11:25 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_24	11/4/2020 5:50 PM	43.82 minutes	11/12/2020 3:35 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_12	9/30/2020 4:53 PM	46.9 minutes	10/15/2020 2:07 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_16	10/12/2020 4:53 PM	37.42 minutes	11/10/2020 9:45 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_25	11/6/2020 5:52 PM	48.35 minutes	11/12/2020 4:50 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_26	11/11/2020 5:51 PM	174.13 minutes	12/16/2020 4:10 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_14	10/7/2020 4:51 PM	47.02 minutes	11/2/2020 7:30 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_1	8/26/2020 4:52 PM	36.05 minutes	9/14/2020 2:54 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_31	12/2/2020 5:52 PM	26.08 minutes	12/16/2020 4:00 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_3	8/31/2020 4:50 PM	47.45 minutes	9/14/2020 2:14 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_5	9/11/2020 4:50 PM	76.72 minutes	10/8/2020 7:54 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_11	9/28/2020 4:50 PM	47.07 minutes	10/26/2020 7:43 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_30	11/30/2020 5:50 PM	42 minutes	12/16/2020 4:02 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_28	11/18/2020 5:53 PM	32.32 minutes	12/16/2020 4:14 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_10	9/25/2020 4:50 PM	43.02 minutes	10/14/2020 8:06 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_8	9/21/2020 4:50 PM	31.77 minutes	10/14/2020 2:02 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_22	10/30/2020 4:51 PM	33.12 minutes	11/12/2020 3:56 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_23	11/2/2020 5:50 PM	36.97 minutes	11/13/2020 1:30 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_18	10/21/2020 4:51 PM	48.3 minutes	11/12/2020 4:50 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_27	11/16/2020 5:53 PM	182.55 minutes	12/16/2020 4:11 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_6	9/16/2020 4:50 PM	45.8 minutes	10/13/2020 6:15 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_33	12/9/2020 5:53 PM	37.7 minutes	12/16/2020 6:21 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_20	10/26/2020 4:52 PM	39.1 minutes	11/13/2020 4:20 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_9	9/23/2020 4:55 PM	39.13 minutes	10/14/2020 2:08 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_21	10/28/2020 4:50 PM	45.32 minutes	11/12/2020 2:20 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_32	12/4/2020 5:53 PM	34.77 minutes	12/16/2020 6:33 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_2	8/28/2020 4:58 PM	35.92 minutes	9/14/2020 3:46 AM	Upload Now	download
SECTION 7 CLASS LINK - recording_17	10/16/2020 4:56 PM	41.45 minutes	11/12/2020 4:16 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_29	11/20/2020 5:53 PM	33.37 minutes	12/16/2020 5:47 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_19	10/23/2020 4:50 PM	45.08 minutes	11/12/2020 8:00 PM	Upload Now	download
SECTION 7 CLASS LINK - recording_4	9/2/2020 4:54 PM	45.48 minutes	9/14/2020 3:26 PM	Upload Now	download

Total Storage Size: **6.93 Gb**

6. Resources

help.blackboard.com

University of Arkansas

- LMS Policy: <https://provost.uark.edu/policies/123000.php>
- Teaching Innovation and Pedagogical Support: <https://tips.uark.edu/>
- Google Analytics Dashboard:
https://datastudio.google.com/u/0/reporting/0Bw_U9cPeMVD0MENKUFFMS01QbGs/page/ilyF

Administrator Help

- *Blackboard Learn Server Administration Guide*
- https://help.blackboard.com/Learn/Administrator/Hosting/System_Management/Logs
- https://help.blackboard.com/Learn/Administrator/SaaS/System_Management/Logs

Blackboard User Community Resource:

- *BBADMIN-L* (<http://is.asu.edu/instruction/faq/usingBBADMIN-L.html>)
- *BLKBRD-L* (<http://is.asu.edu/instruction/faq/usingBLKBRD-L.html>)
- *Blackboard Community*: <https://community.blackboard.com/>
- *Slack*: <https://blackboardtechies.slack.com>

Blackboard Learn Logs

- *Tracking User Activity in the Webserver Logs* (BtBb Article # [000014571](#))
- *Apache Logs and the Activity Accumulator* (BtBB Article # [000014497](#))
- *BbWorld 20: How to Bolster Academic Integrity*
(<https://bbadmin.uark.edu/2020/07/20/bbworld20/>)

Tracking:

- *InfoSniper* (<http://www.infosniper.net/>)
- *User Agent String* (<http://www.useragentstring.com/>)

Blackboard Learn Instructor Help (Course Tracking and Logs)

- *Course*
Reports: https://help.blackboard.com/Learn/Instructor/Performance/Course_Reports
- *Test Access*
Log: https://help.blackboard.com/Learn/Instructor/Tests_Pools_Surveys/Resolve_Issues_With_Tests
- *Grade*
History: https://help.blackboard.com/Learn/Instructor/Grade/Grade_History
- *Grade*
Details: https://help.blackboard.com/Learn/Instructor/Grade/Grading_Tasks/View_Grade_Details

Direct Data Access (DDA)

- https://help.blackboard.com/Learn/Administrator/SaaS/Integrations/Direct_Data_Access

Blackboard Data

- https://help.blackboard.com/Blackboard_Data
- data.blackboard.com
- <https://github.com/blackboard/BBDN-BlackboardData-Queries>

Google

Analytics Configuration: https://blackboard.secure.force.com/btbb_articleview?id=kAE1O000000Xa5IWAC