

Visualizing students' online learning experiences using Canvas data

Education Research + Assessment Hub | April Yan

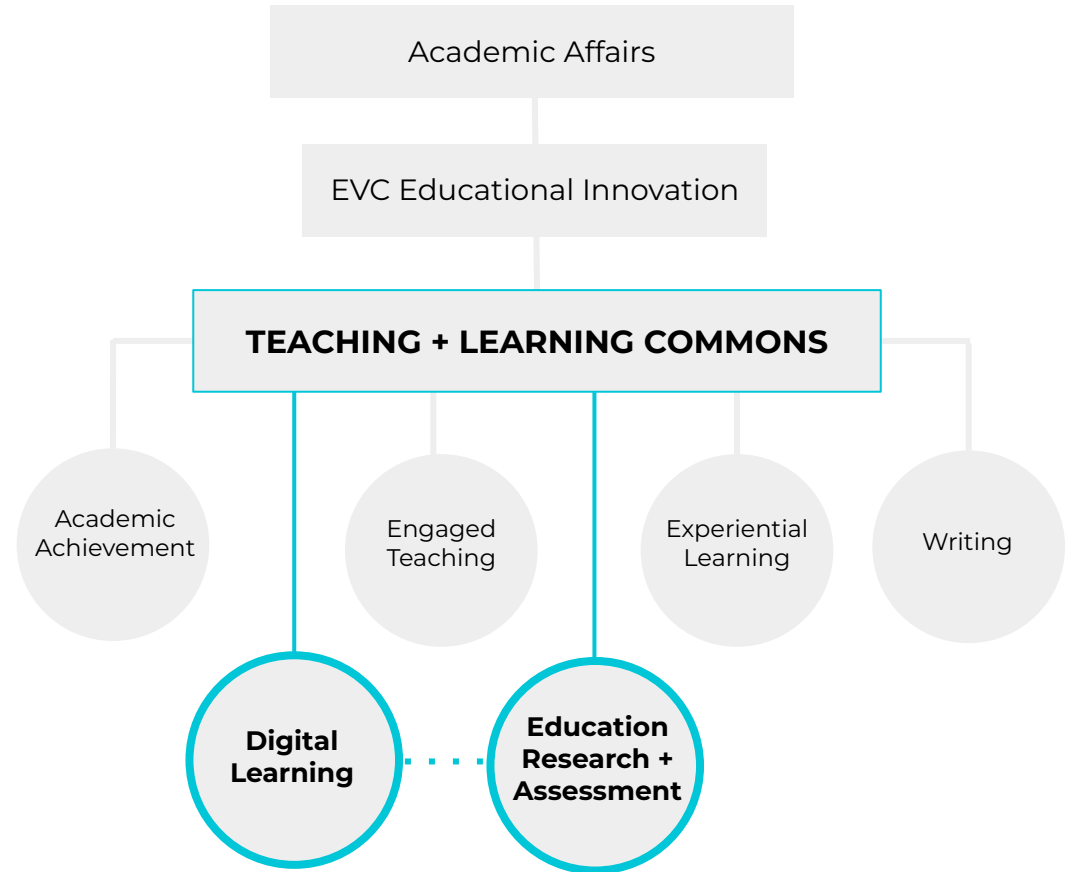
Digital Learning Hub | April Cha

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4/6/2023

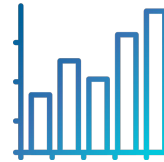
Organizational Structure

(Who We Are)



Outline + Goals

- Online Enrollment Overview
- Dashboard Examples
- Usage and Challenges



Identify
LMS Data



Support Course
Improvement



Disaggregate
Demographic Data

Overview
**Online
Courses at
UC San Diego**



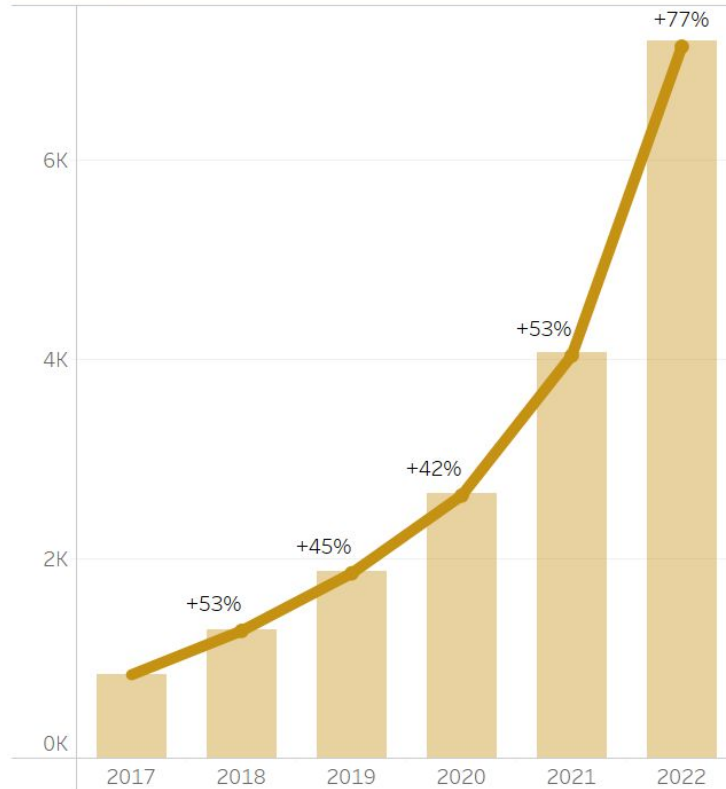
Online courses offered
since 2018

Enrollment range



Overview Increase in Enrollment

Undergraduate enrollment in online courses

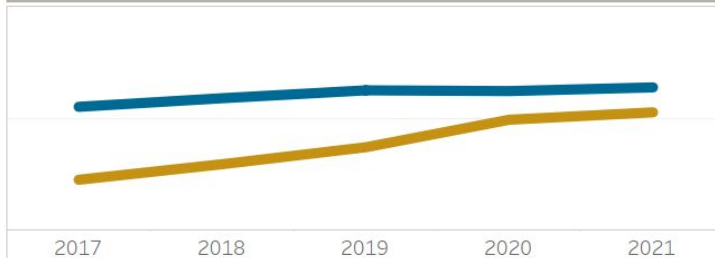


Overview

Increase in Enrollment

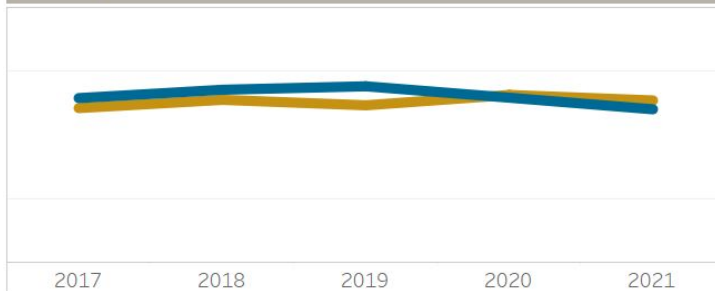


Under-rep students



- Fully online courses
- all other In person courses


First gen students




Dashboards Examples




Assignment workload



Assignment Submission



Discussion board activities

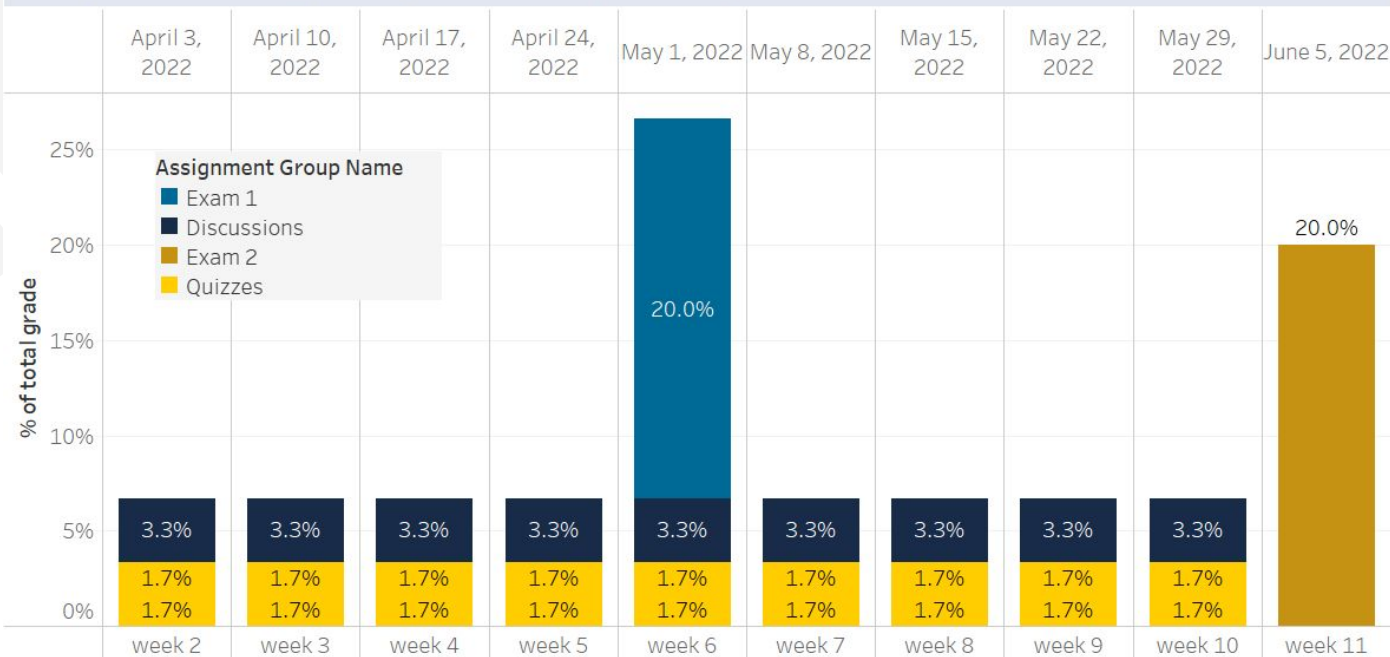


Course activity heat map

Assignment workload overview

Course A

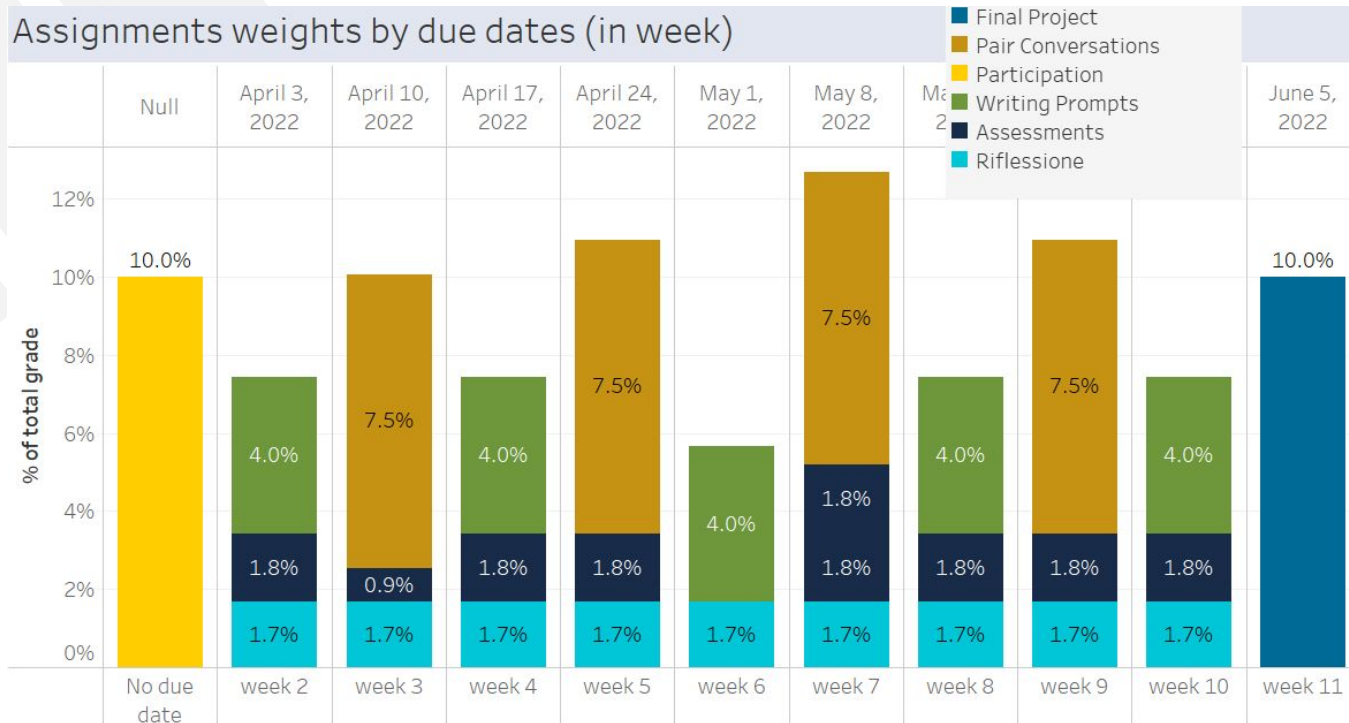
Assignments weights by due dates (in week)



Assignment workload overview

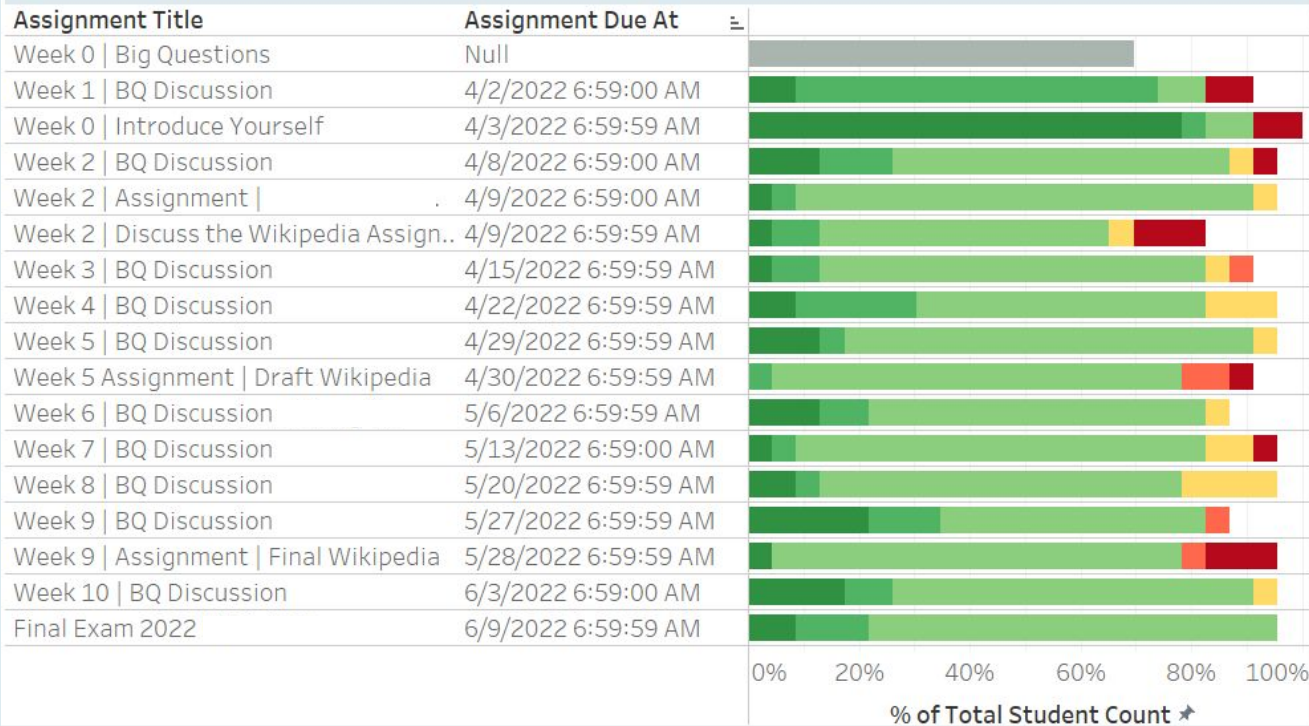
Course B

Assignments weights by due dates (in week)



Assignment submission

Assignment submission activities



Student groups - with intl

- (All)
- First gen & under-rep students
- First gen or under-rep students
- International
- Not first gen, Not under-rep students

Class Section Enrolled At End of Term Flag

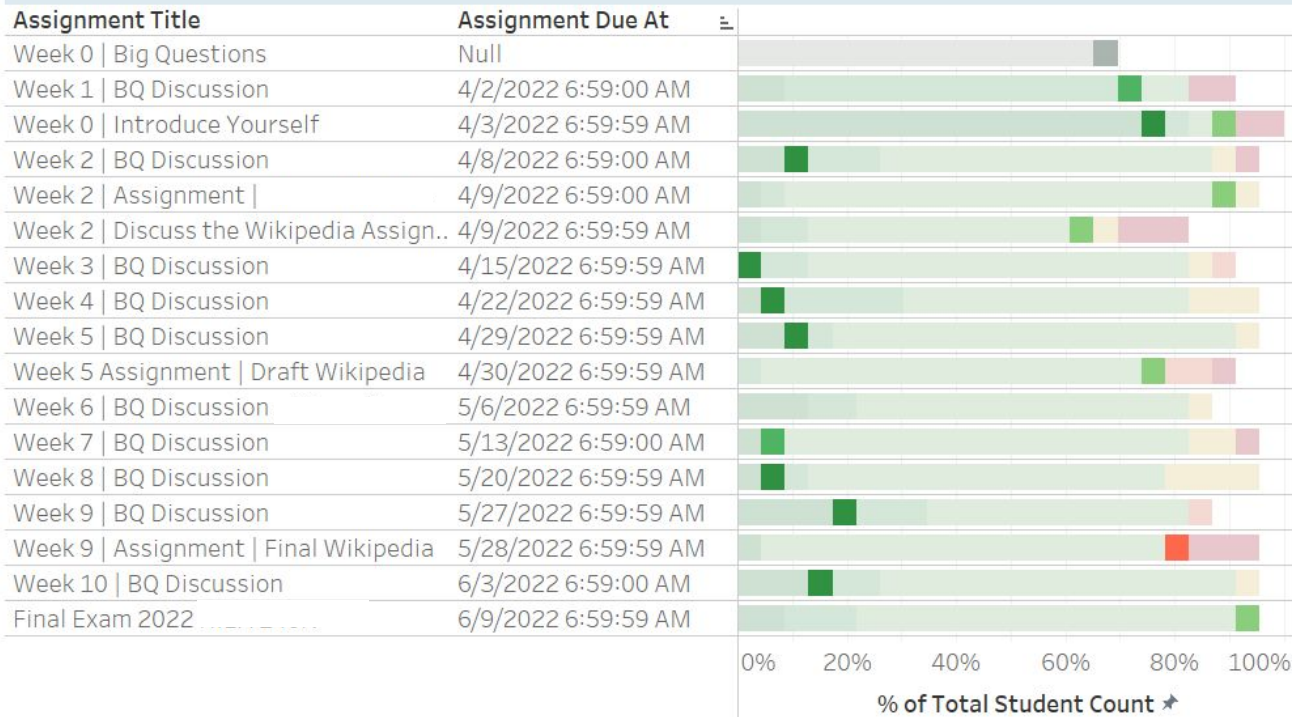
Yes

Submission time

- no due date
- late by more than 48 hours
- late by 48 hours
- late by 24 hours
- 0-24 hours ahead
- 24-48 hours ahead
- more than 48 hours ahead

Assignment submission

Assignment submission activities



Student groups - with intl

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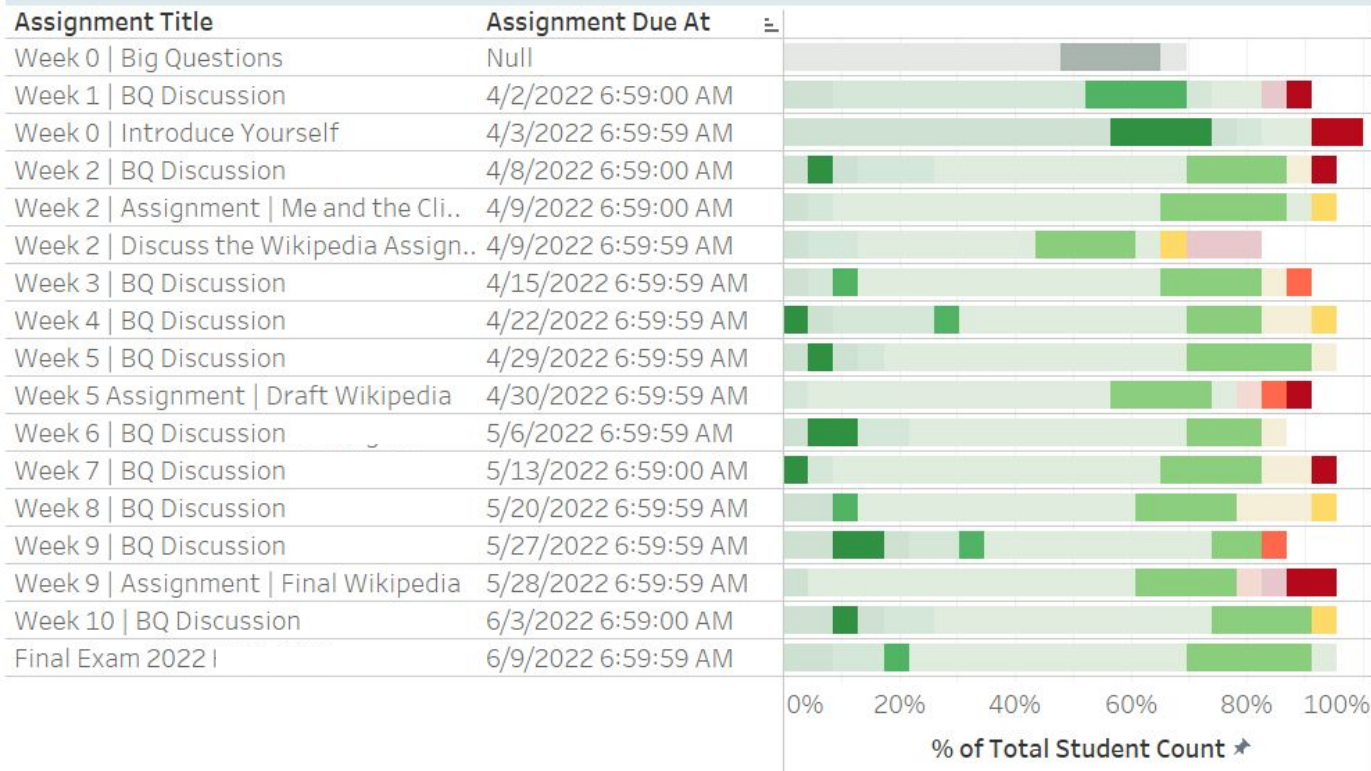
more than 48 hours ahead

Highlight Student groups

First gen & under-rep students

Assignment submission

Assignment submission activities



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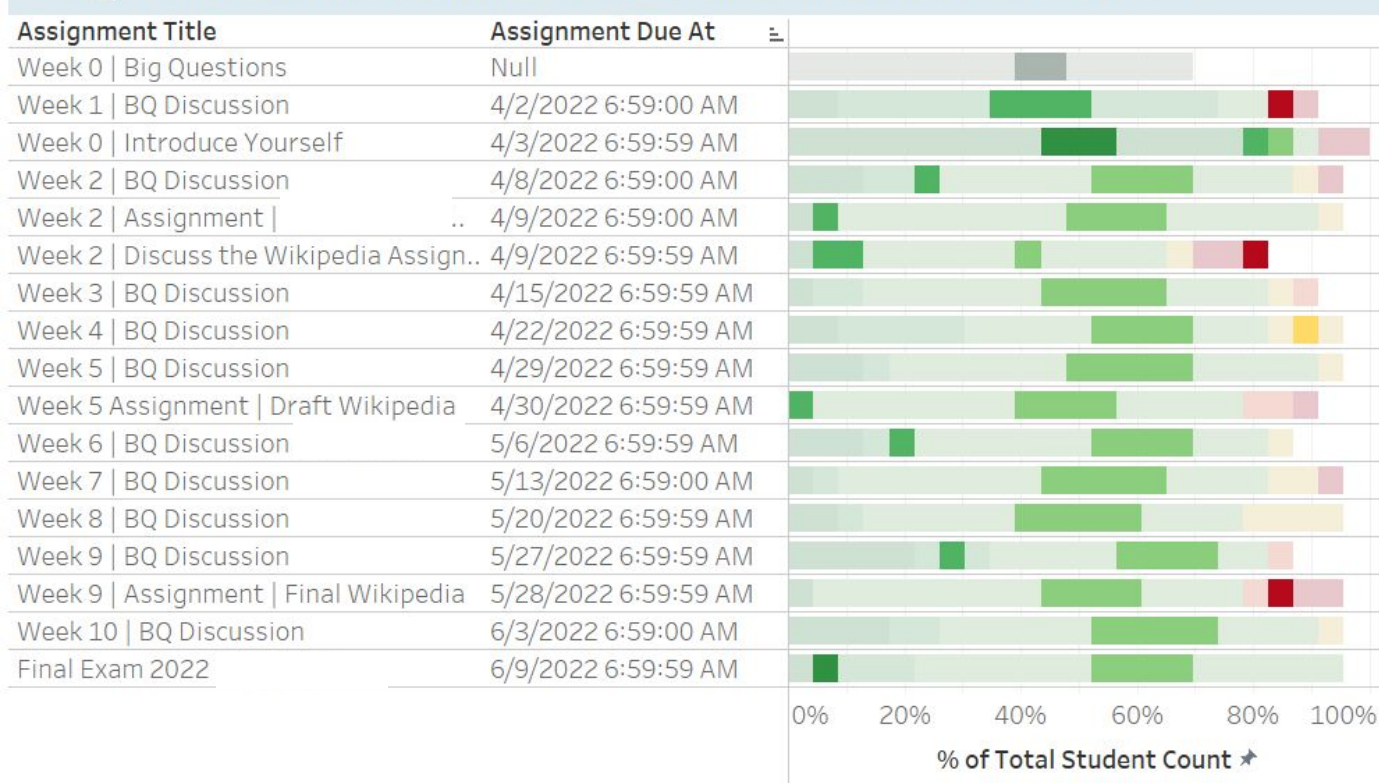
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Highlight Student groups

First gen or under-rep students

Assignment submission

Assignment submission activities



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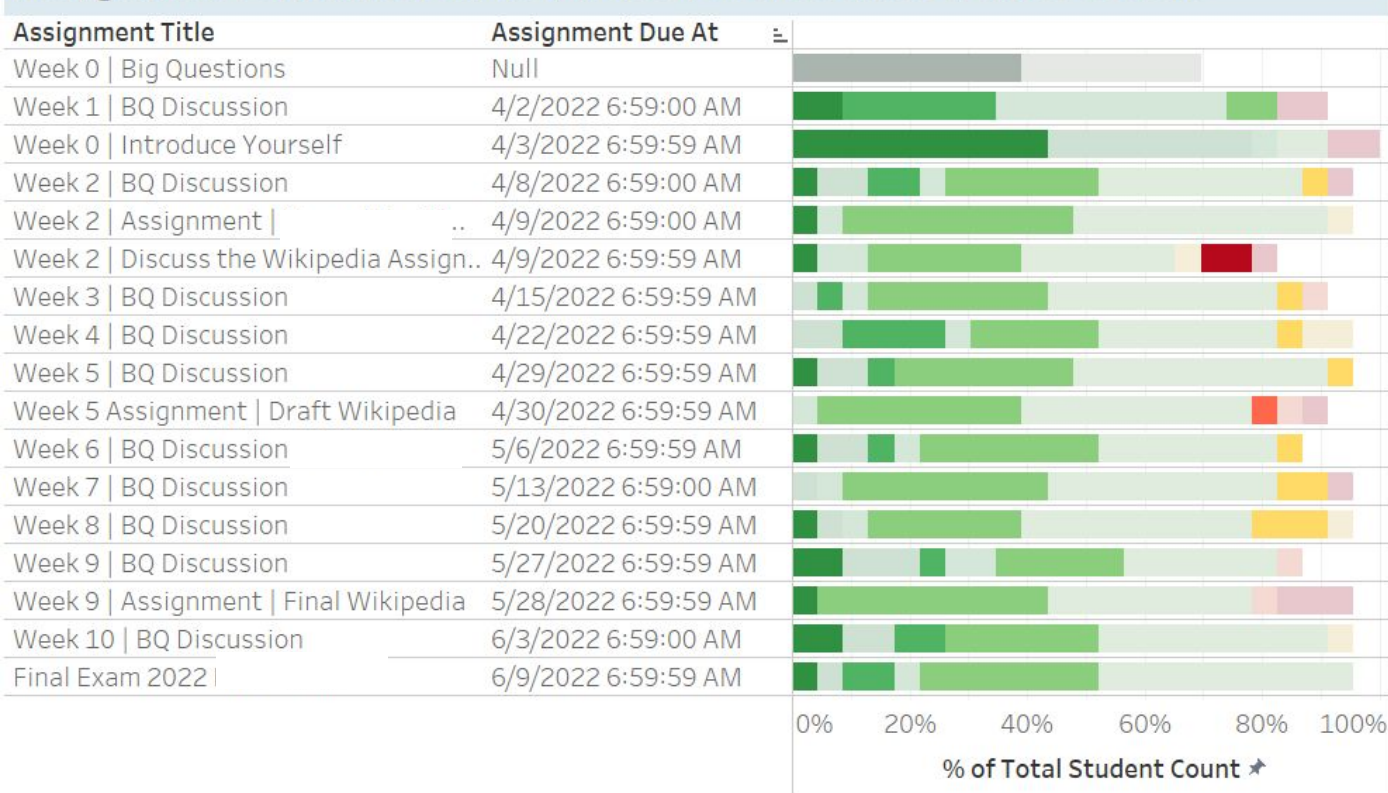
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Highlight Student groups

International

Assignment submission

Assignment submission activities



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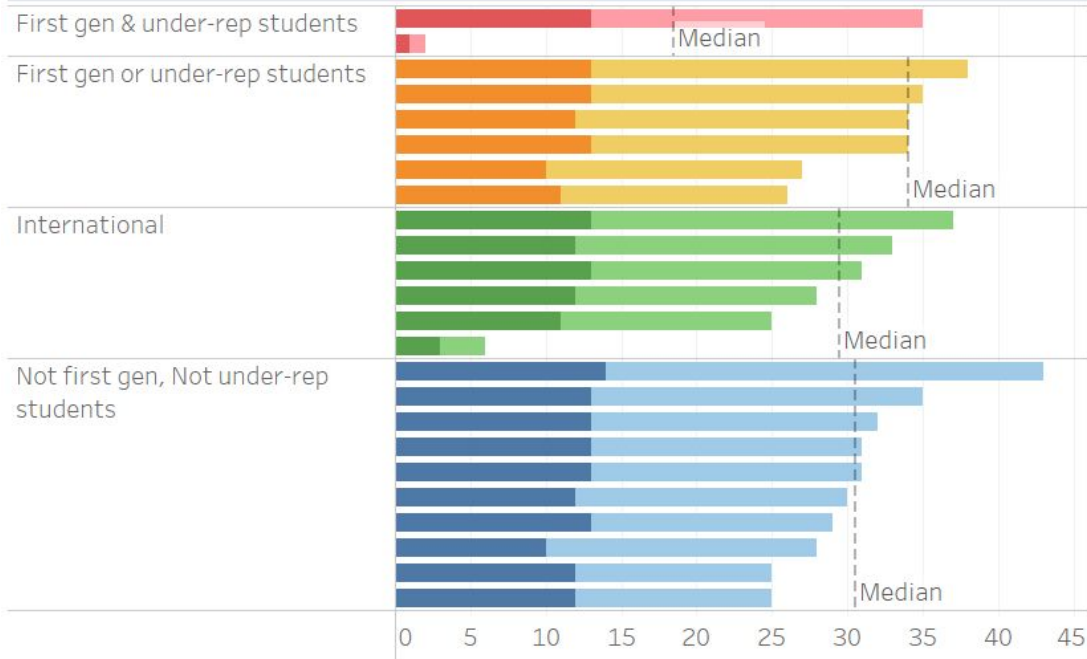
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Highlight Student groups

Not first gen, Not under-rep students

Discussion Activity

Example of Discussion Entries



Post a new entry by student group

- First gen & under-rep students, Post a new entry
- First gen or under-rep students, Post a new entry
- International, Post a new entry
- Not first gen, Not under-rep students, Post a new entry

Reply to an entry by student group

- First gen & under-rep students, Reply to an existing entry
- First gen or under-rep students, Reply to an existing entry
- International, Reply to an existing entry
- Not first gen, Not under-rep students, Reply to an existing entry

Course Activity Heatmap

Active Students by Day and Hour

Hour of..	Sunday	Monday	Tuesday	Wednesd..	Thursday	Friday	Saturday
0	53	74	126	214	166	94	54
1	43	60	79	145	107	58	36
2	23	31	62	92	75	33	22
3	16	32	44	74	45	16	16
4	22	19	22	60	31	15	11
5	12	21	30	55	31	10	9
6	20	40	35	56	69	14	18
7	39	72	65	93	130	33	28
8	62	143	108	141	136	65	45
9	78	184	154	197	219	90	87
10	105	181	182	258	241	104	120
11	112	210	293	288	275	115	89
12	122	227	288	294	308	124	111
13	130	230	277	322	323	113	121
14	145	230	289	334	335	130	105
15	162	266	327	339	341	131	106
16	158	315	314	355	340	119	111
17	131	237	326	338	363	113	106
18	145	211	336	304	369	112	117
19	137	222	331	347	372	99	100
20	160	204	336	337	372	97	170
21	149	222	344	341	362	100	138
22	152	201	340	330	345	104	119
23	136	198	300	308	286	88	107

% of Total N student

1.63%  67.27%

Course Activity Count by Day and Hour

Hour of..	Sunday	Monday	Tuesday	Wednesd..	Thursday	Friday	Saturday
0	235	305	616	1,239	898	347	186
1	207	258	344	862	532	196	94
2	82	135	202	438	252	89	65
3	56	93	172	341	172	29	46
4	73	65	105	290	125	35	21
5	50	87	115	229	101	28	42
6	82	154	168	292	285	40	89
7	121	297	305	393	581	94	100
8	209	596	636	800	653	242	166
9	296	841	771	969	1,115	332	279
10	362	973	946	1,677	1,389	371	415
11	395	1,308	2,309	2,021	1,824	464	308
12	421	1,317	2,071	1,849	2,016	466	434
13	440	1,294	1,971	2,241	2,093	460	500
14	670	1,135	1,926	2,240	2,210	564	489
15	703	1,414	2,255	2,229	2,300	549	486
16	703	1,692	2,122	2,316	2,436	519	432
17	644	1,210	2,157	2,094	2,753	491	421
18	670	1,093	2,232	1,971	2,904	424	492
19	768	1,169	2,165	2,300	2,989	380	406
20	646	1,008	2,120	2,366	3,072	407	534
21	695	1,183	2,391	2,415	3,323	349	487
22	616	1,258	2,211	2,279	3,240	473	520
23	454	1,026	1,928	2,053	2,204	345	513

Course activity count

21  3,323

Course ID T

Course Term Code

FA21

Course activity name

- (All)
- Announcement viewed
- Assignment viewed
- Course collaborations viewed
- Course grade viewed
- Course outcome viewed
- Course quizzes viewed
- Course roster viewed
- Course speed grader viewed
- Course topics viewed
- Course updated
- File viewed
- Module viewed
- Not labeled activity
- Page content search viewed
- Page viewed
- Syllabus viewed



How we develop and use dashboards

Designing considerations

- Theoretical foundations
- Including clients
- Collaborating with IT
- Disaggregation

Use of dashboards

- Conversation starter
- Iterative course design
- Providing evidences

Future goals

- Including students in the design process
- Correlation between survey data and LMS data (working)

Lessons Learned

Differences in Course Design

Starting small

Including multiple partners

Survey data with canvas data

DISCUSSION + Q&A

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- Baker, R., Xu, D., Park, J., Yu, R., Li, Q., Cung, B., Fischer, C., Rodriguez, F., Warschauer, M., & Smyth, P. (2020). The benefits and caveats of using clickstream data to understand student self-regulatory behaviors: opening the black box of learning processes. *International Journal of Educational Technology in Higher Education*, 17(1), 1–24. <https://doi.org/10.1186/s41239-020-00187-1>
- Gašević, D., Dawson, S., Siemens, G., Gašević, B. D., & Dawson, S. (2015). Let's not forget: Learning analytics are about learning. *TechTrends*, 59(1), 64–71. <https://doi.org/10.1007/s11528-014-0822-x>
- Jivet, I., Scheffel, M., Specht, M., & Drachler, H. (2018). License to evaluate: Preparing learning analytics dashboards for educational practice. *ACM International Conference Proceeding Series*, 31–40. <https://doi.org/10.1145/3170358.3170421>
- You, J. W. (2016). Identifying significant indicators using LMS data to predict course achievement in online learning. *Internet and Higher Education*, 29, 23–30. <https://doi.org/10.1016/j.iheduc.2015.11.003>