

A Brief Analysis of Course Offerings and Sequential Course Taking in Summer Terms ¹

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Executive summary.....	2
Overview: Three-year contribution of summer sections by length.....	4
Number of offerings and extent of cancellations.....	4
Table 1. Three-year combined contribution of summer courses by length.....	5
Enrollment and FTES.....	5
Summary of critical observations relevant to seven-week and thirteen-to-sixteen-week sections.....	5
Breakdown of seven-week Session A and Session B enrollment.....	6
Seven-week section departmental loads.....	6
Table 2. Breakdown of seven-week section offerings by Session A and Session B.....	7
Multi-session and inter-department sequential course taking behavior.....	8
Table 3. Course Taking Behavior for Students Who Enrolled in at Least One Seven-Week Section....	8
Conclusion.....	9

¹ Research conducted by request of Columbia College President Santanu Bandyopadhyay

A (Very) Brief Analysis of Course Offerings and Sequential Course Taking in Summer Terms

Executive summary

To facilitate discussions about summer semester lengths, a study examined summer sections in terms of the number of offerings, enrollment, and FTES broken out by different course lengths, and with special attention to thirteen-to-sixteen-week offerings and sequential seven-week course offerings because both types of sections required longer summer terms. The executive summary focused on these two groups of courses, while information about additional courses can be found within the main report. The analyses examined a combined three-year range of summer sections including 2017, 2018, and 2019.

- ***Thirteen-to-sixteen week courses***

- Although thirteen-to-sixteen-week courses required a longer semester, they were relatively unpopular and poor generators of FTES. These sections were highly subject to cancellation. Of 157 initially planned sections, only 47 (29.9%) ultimately commenced. They were cancelled at a ratio of 2.3 sections for every section which commenced. Given the small number of thirteen-to-sixteen-week sections which actually proceeded, these courses also supported just 11.3% of summer census-enrollment, and just 8.7% of FTES. Further, they were relatively inefficient on a student-by-student basis. The FTES generated per student was just .06, which was the same ratio as much shorter one-to-six-week courses.

- ***Seven-week courses***

- Seven-week sections were more popular and were the best generators of FTES. They were far less subject to cancellation, and 84.3% of planned sections ultimately commenced. They supported about 25.8% of summer enrollments in the three-year timeframe, and generated the largest proportion of FTES (34.4%). They were also the most efficient course-types, generating .11 FTES per individual student.
- Seven-week courses were compared based on whether they commenced in the first-half of a given summer term (i.e., *Session A* for the purposes of this study), or whether they commenced in the second-half of the term (i.e., *Session B*). While Session B sections were somewhat more popular in terms of both enrollment (871 for Session B vs. 750 for Session A) and FTES (100.5 vs. 83.5), both session types were apparently well enrolled. The odds of enrolling was just 1.2 Session B students for every Session A student.
- Of all seven-week offerings, the *Math*, *English*, and *Music* departments consistently accounted for the greatest enrollments and FTES, and were consistently scheduled across both Session A and Session B. *Math* sections accounted for about 30% of enrollment and 40% of FTES in either session. *English* sections accounted for about 28% of enrollment and 24% of FTES in either session. *Music* sections accounted for a smaller portion of enrollment and FTES in either session (roughly 13% and 12% respectively), but nevertheless outweighed other departments and were offered routinely in both sessions in all three summers.
- Sequential course taking across any department was relatively unpopular. Only about 14.9% of students who enrolled in at least one seven-week section did so in both Session A and Session B. Students who enrolled in at least one seven-week section were more likely to

- enroll in either a one-to-six-week course (23.9%) or an eight-to-twelve-week course (17.5%).
- Sequential course taking was even less common within individual departments. Across the entire analytic timeframe, for example, only 12 of 445 individual students (2.7%) enrolled in at least one *English* course in both Session A and Session B, and only 4 of 222 (1.8%) did so in *Music*. Sequential course taking was more common for *Math* sections, such that 57 of 416 (13.7%) students enrolled in both Session A and Session B math sections. Even then, however, only a handful of students took advantage of *Math* courses in both Sessions in any given year (20 in 2017, 22 in 2018, and 15 in 2019)

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Columbia College is required to offer fifteen-to-sixteen-week fall and spring semesters to maintain consistency with other Yosemite Community College District (YCCD) units, particularly Modesto Junior College (MJC), but has more flexibility in scheduling its summer terms. While summer semesters provide important opportunities for degree seeking students to advance their educational programs, the college currently offers full length fifteen-to-sixteen-week summer semesters, and some campus stakeholders have asked whether so many weeks bring value to Columbia College and its students. For example, if students are not enrolled throughout the entire summer, are not generating student-full-time-equivalencies (FTES), or are otherwise not taking advantage of the full range of summer offerings, does it make sense to continue to provide them, or could summer semesters be shortened and the courses within be more efficiently organized? Alternatively, could certain course types offered in the summer be emphasized to make a full-length term more appealing and enrollment more consistent?

Such questions are best suited for discussions about academic management within the college community, but analyses were conducted to inform such conversations. The research examined Columbia College's summer courses in terms of section offerings by departments, section lengths in weeks, enrollment tallies, and FTES. Particularly for shorter courses, Columbia College courses are somewhat variable in terms of their starting dates and length, and in this study were grouped as courses which ranged from *one-to-six-weeks*, courses which were exactly *seven-weeks*, courses that ranged *eight-to-twelve-weeks*, and courses that ranged *thirteen-to-sixteen-weeks*. Quantifying the contributions of thirteen-to-sixteen-week courses was implicitly critical to the analysis because they necessitated full length semesters. However, the contributions of seven-week courses were of special consideration in the extent that students took advantage of multiple courses or took them in sequence. To put this interest in context, two six-week courses scheduled in sequence could be completed in a shorter twelve-week semester, while two sequential seven-week courses would require a lengthier term of at least fourteen weeks.

In this study, seven-week courses were considered based on whether they started in the first-half of a summer semester (i.e., session A), or whether they started in the second-half of a summer semester (i.e., session B). The research comprised all section and student-enrollment records for Columbia College summer semesters over a three-year timeframe including Summer 2017, Summer 2018, and Summer 2019. All records were drawn from the college's student information system using Crystal Reports, and were compiled for analysis in RStudio.

Overview: Three-year contribution of summer sections by length

Number of offerings and extent of cancellations

Columbia College initially offered 558 summer sections within the three-year analytic time frame, of which 359 (64.3%) ultimately commenced (i.e., were not cancelled or placed in some other pending status, Table 1). One-to-six-week sections comprised the greatest number of both planned and commenced sections (189 and 145 respectively). In other words, they demonstrated a commencement rate of 76.7% of planned offerings. There were 75 commenced seven-week sections, and seven-week sections had the greatest commencement-rate of planned offerings compared to the other section groupings (84.3%). Commenced eight-to-twelve-week sections were 92, and had a somewhat weaker but still relatively large commencement rate of 74.8%. Thirteen-to-sixteen-week sections, however, were notably subject to cancellation, such that only 47 of 157 planned sections were executed, for a

commencement rate of just 29.9%. Viewed another way, the odds of cancellation for thirteen-to-sixteen-week courses were 2.34 cancelled sections for every section which commenced.

Table 1. Three-year combined contribution of summer courses by length

	One-to- six- week courses	Seven- week courses	Eight-to- twelve- week courses	Thirteen- to- sixteen- week courses	All courses of any length
Planned Sections	189	89	123	157	558
Sections which commenced	145	75	92	47	359
Section-commencement rate	76.7%	84.3%	74.8%	29.9%	64.3%
Cancelled or other sections	44	14	31	110	199
Odds of cancellation	0.30	0.19	0.34	2.34	0.55
Census enrollment (duplicated by sections)	2,496	1,657	1,521	724	6,398
Census enrollment percent of all courses	39.0%	25.8%	23.7%	11.3%	100.0%
FTES	157.8	186.5	150.6	47.0	541.9
FTES percent of all courses	29.1%	34.4%	27.8%	8.7%	100.0%
FTES per student (FTES/enrollment)	0.06	0.11	0.10	0.06	0.08

Enrollment and FTES

One-to-six-week sections comprised the greatest enrollment at 2,496 of 6,398 total enrollments (39.0%), and generated 157.8 FTES or 29.1% of 541.9 total FTES (Table 1). However, the FTES generated per student were comparatively low at .06, raising questions about the efficiency of these shorter courses. On the other hand, their shorter length implied that they required fewer contact hours and otherwise consumed fewer resources to operate, and so generating fewer FTES per student in a shorter course was not necessarily alarming.

Seven-week sections were 1,657 enrollments (25.8% of total enrollments, Table 1). These sections also generated the greatest FTES (186.5), and the greatest FTES per student (.11). These were critically important observations because they suggested that seven-week summer courses were both relatively popular, generated relatively substantial FTES, and were the most efficient compared to other course types in terms of FTES yield per student.

Eight-to-twelve-week courses were also relatively popular at 1,521 enrollments, or 23.7% of total enrollments (Table 1). They generated 150.6 FTES, and a comparatively efficient rate of about .10 FTES per student.

Thirteen-to-sixteen-week sections generated the lowest enrollment, yielding just 724 of 6,398 total enrollments (11.3%), and just 47.0 FTES (8.7%, Table 1). Importantly, thirteen-to-sixteen-week courses were relatively inefficient, and had a rate of just .06 FTES per enrolled student.

Summary of critical observations relevant to seven-week and thirteen-to-sixteen-week sections

Seven-week sections had the greatest commencement rate (i.e., not cancelled, pending, etc., 84.3% of 89 initially planned sections), comprised 1,657 enrollments or about 25.8% of summer enrollments in the three-year timeframe, generated the most FTES compared to all other course types (186.5), and showed the greatest efficiency at .11 FTES per enrollment. In the context of all summer offerings, seven-week courses did seem like important drivers of enrollment, and were being taken advantage of by Columbia College students.

Thirteen-to-sixteen-week sections, on the other hand, showed especially poor commencement compared to other course lengths (just 29.9% of 157 initial offerings in the three-year timeframe), and 2.3 sections were cancelled for every one that commenced. They comprised the fewest enrollments compared to other course lengths at just 724, or about 11.3% of enrollments in the analytic period. Finally, thirteen-to-sixteen-week sections generated the fewest FTES (47.0, or 8.7% of all FTES), and were notably inefficient given their length at just .06 FTES per student. The lack of yield from thirteen-to-sixteen-week sections certainly raised questions about whether they were practical offerings, or alternatively could be revised to increase their appeal.

Breakdown of seven-week Session A and Session B enrollment

As previously indicated, seven-week sections were of special interest for this study because of their opportunity for students to take back-to-back sequences of certain courses to make substantial advances on their programs of study between regular spring and fall terms, but also because offering courses in this way required a longer summer semester, and was potentially impractical if students did not take advantage of such offerings. One preliminary question, then, was the extent to which students enrolled in either Session A or Session B courses, and whether one session was more utilized than another. Analyses did not demonstrate such an imbalance, at least not severely so. Session B did tend to offer more sections than Session A (40 versus 33), somewhat greater enrollment (871 versus 750), and generated more FTES (100.5 versus 83.5). As such, Session B sections were clearly more popular than Session A sections, and generated more FTES. Such differences should certainly not be ignored, and may be relevant when planning summer sections either because they imply that students prefer sections that start later in the summer, or for some other reason find earlier sections less appealing. On balance, however, the differences between the two session types was not so great as to suggest that one was wholly impractical or underutilized. The odds of enrolling in Session B versus Session A, for example, was 1.2 to 1. In other words, just two-tenths of an extra student enrolled in any given Session B section for each student who enrolled in a Session A offering. Similarly, the FTES ratio was just 1.2 Session B FTES for each Session A FTES.

Seven-week section departmental loads

Seven-week section offerings, enrollment tallies, and FTES varied somewhat between most departments and years in the three-year analytic timeframe (Table 2). The *Anthropology* department, for instance, offered just one Session B section in 2017, but no Session A sections in that year and no seven-week sections at all in 2018 or 2019. *Biology* offered two Session B sections in 2017, one Session B section in 2018, no Session B sections in 2019, and no Session A sections at all. *Child Development* did not have any seven-week offerings in 2017, offered three Session A and one Session B sections in 2018, and just three Session A sections in 2019.

Table 2. Breakdown of seven-week section offerings by Session A and Session B

Departments with at least one section in both Session A and Session B by year							
Department	AY	Session A Section Count	Session B Section Count	Session A Enrollm ent	Session B Enrollm ent	Session A FTES	Session B FTES
Child Development	2018	3	1	49	23	4.6	2.2
English	2017	4	4	88	87	8.4	8.3
English	2018	3	4	73	71	6.9	6.8
English	2019	2	5	50	89	4.7	8.5
Math	2017	4	3	98	78	15.4	12.8
Math	2018	2	5	48	105	6.8	17.4
Math	2019	4	3	89	66	9.8	11.0
Music	2017	1	1	36	18	3.4	1.7
Music	2018	1	1	36	37	3.4	3.5
Music	2019	1	2	37	63	3.5	5.9
All	All	25	29	604	637	66.9	78.1

Departments with sections in only Session A or only Session B by Year							
Department	AY	Session A Section Count	Session B Section Count	Session A Enrollm ent	Session B Enrollm ent	Session A FTES	Session B FTES
Anthropology	2019	0	1	0	29	0.0	3.0
Art	2017	0	2	0	18	0.0	1.3
Biology	2017	0	2	0	55	0.0	5.2
Biology	2018	0	1	0	13	0.0	1.4
Child Development	2019	3	0	63	0	5.9	0.0
Chemistry	2018	2	0	43	0	4.5	0.0
Guidance	2018	0	1	0	20	0.0	1.9
Hospitality	2017	2	0	19	0	4.0	0.0
Humanities	2017	0	1	0	19	0.0	1.8
Humanities	2018	0	1	0	23	0.0	2.2
Humanities	2019	0	1	0	29	0.0	2.7
Psychology	2019	0	1	0	28	0.0	2.9
Sociology	2017	1	0	21	0	2.2	0.0
All	All	8	11	146	234	16.6	22.4

Cumulative Totals							
Department	AY	Session A Section Count	Session B Section Count	Session A Enrollm ent	Session B Enrollm ent	Session A FTES	Session B FTES
All	All	33	40	750	871	83.5	100.5

Notes. Section counts, enrollment tallies, and FTES estimates will not exactly match the total estimates shown in Table 1 because a few seven-week Guidance courses were scheduled as bridging Session A and Session B starting timeframes, and so were excluded from analysis.

Despite such variation, three departments clearly offered more seven-week sections than others, and did so more consistently across both Session A and Session B (Table 2). Subsequently, these departments also drove overall enrollment, and generated more FTES. These departments were *Math*, *English* and *Music* in order of total FTES generation. Across all three years, the *Math* department accounted for 235 enrollments and 32.0 FTES in Session A, and it accounted for 249 enrollments and 41.2 FTES in Session B. Viewed another way, *Math* accounted for approximately 30% of enrollments in either session, and generated approximately 40% of FTES. The *English* department accounted for 211 enrollments and 20 FTES in Session A, and accounted for 247 enrollments and 23.6 FTES in Session B. As such, *English* accounted for roughly 28% of enrollments in either session, and approximately 24% of FTES. Finally, the *Music* department accounted for 109 enrollments and 10.3 FTES in Session A, and accounted for 118 enrollments and 11.1 FTES in Session B. *Music* generated proportionally less enrollment and FTES than *Math* or *English* at roughly 13% of enrollments in either session and about 12% of FTES, but the department's contributions were consistent over time.

Multi-session and inter-department sequential course taking behavior

As previously indicated, the extent that students pursued seven-week sections in sequence was an important consideration because a preponderance of such behavior would increase the need for a lengthier summer term. At first glance, taking both Session A and Session B sections for students who enrolled in at least one seven-week section was not especially popular, nor was enrolling in sections of other lengths. Of all 1,292 such students across the three-year timeframe (unduplicated within but not between years), only 193 (14.9%) pursued both Session A and Session B sections across all departments. Rather, these students were somewhat more likely to enroll in at least one one-to-six-week section (309, or 23.9%), or at least one eight-to-twelve-week section (226, or 17.5%).

Table 3. Course Taking Behavior for Students Who Enrolled in at Least One Seven-Week Section

Overall Course Taking Behavior	Enrollments
At least one seven-week section	1,292
At least one Session A section	684
At least one Session B section	801
At least one of <u>both</u> Session A and Session B sections	193
At least one one-to-six-week section	309
At least one eight-to-twelve week section	226
At least one thirteen-to-sixteen week section	90
Course Taking Behavior by Departments Offering at Least One Section in Both Session A and Session B in at Least One Year	
	Enrollments
Child Development – At least one seven-week section	129
Child Development – At least one of <u>both</u> Session A and Session B sections	3
English – At least one seven-week section	445
English – At least one of <u>both</u> Session A and Session B sections	12
Math – At least one seven-week section	416
Math – At least one of <u>both</u> Session A and Session B sections	57
Music – At least one seven-week section	222
Music – At least one of <u>both</u> Session A and Session B sections	4

Notes. Enrollment tallies were unduplicated within, but not between, academic years in the analytic timeframe.

While pursuing sequential seven-week sections across any department was somewhat uncommon, pursuing sequential seven-week sections within departments was even less so (Table 2). Indeed, of all departments that offered at least one Session A and at least one Session B section in any given year, only 3 of 129 students (2.3%) did so for *Child Development* sections, only 12 of 445 (2.7%) did so for *English* sections, and only 4 of 222 (1.8%) did so for *Music* sections. Sequential course-taking was somewhat more common for *Math* sections (57 of 416 students, or 13.7%), but even then this broke down to just a handful of students in any given year (20 in 2017, 22 in 2018, and 15 in 2019, not tabled).

Conclusion

This research examined summer course offerings in terms of the number of sections, the number of enrollments, and FTES generation. Because the questions driving these analyses revolved around the value of offering full length summer terms, analyses paid close attention to thirteen-to-sixteen week offerings across a three-year time frame, and found that these sections were not highly enrolled, were highly subject to cancellation, generated very few FTES, and generated relatively poor FTES per student.

The analyses also paid special attention to seven-week offerings, and particularly the extent that students enrolled into them sequentially (i.e., took advantage of both Session A and Session B offerings). The research found that seven-week courses were relatively popular compared to other section lengths in terms of enrollment, that they generated the most FTES of all section lengths, and that they generated the greatest FTES per individual student compared to other section lengths indicating that they were relatively efficient. The findings further demonstrated that while Session B sections yielded more enrollment than Session A sections, both session types were well enrolled and generated FTES.

Within seven-week summer course sections, the research found that *Math*, *English*, and *Music* departments tended to generate the greatest enrollment and FTES in both session types. However, only a handful of students took advantage of dual-session summers to pursue courses in sequence. Sequential course taking across all departments was relatively uncommon, and was even more uncommon within individual departments.