Transfer-level Math Forecast

Office of Institutional Effectiveness Research Request
September 14, 2018

BAKERSFIELD COLLEGE

Problem statement: The math department is currently working on changes to the curriculum in order to be in compliance with AB 705 (Irwin). To assist with planning for fall 2019, the department would like to know the projected number of students with HS GPA cutoffs that align with AB 705 placement procedures.

To project the fall 2019 distribution of students according to default placement rules provided by the Chancellor's office[1], we began by examining the characteristics and prior high school performance of the fall 2018 cohort of first-time students attending Bakersfield College. We then use the high school performance groups described in the Chancellor's Office memo to describe the proportion of first-time students that will typically be eligible for direct enrollment in Statistics (i.e., MATH B22 or PSYC B5), Finite Math (MATH B23), or Math for Elementary Teachers (MATH B4A). The remainder of incoming students will be eligible for enrollment in Statistics with additional support. We also parse the incoming cohort according to their eligibility for BSTEM coursework, specifically, their eligibility for placement directly into Precalculus II, directly into Precalculus I, or into Precalculus I with support.

Table 1. Percentages of first-time fall 2018 students eligible for specific math placement under AB 705

Initial Course Placement	% Eligible for Placement	Notes
Precalculus II (MATH B1B) or Business Calculus (MATH B2) [*Direct Placement*]	10.3%	MMAP placement rules for students with high GPAs and advanced math coursework
Precalculus I (MATH B1A) [*Direct Placement*]	4.6%	Chancellor's Office default placement rules per AB 705
Precalculus I (MATH B1A) [*Placement with support*]	2.8%	Chancellor's Office default placement rules per AB 705
Intermediate Alg. (MATH B70) [*Direct Placement*]	0.2%	Intermediate Algebra is required for Industrial Drawing
Math for Elem. Teachers (MATH B4A) [*Direct Placement*]	2.5%	Chancellor's Office default placement rules per AB 705
Statistics (MATH B22 or PSYC B5) or Finite Math (MATH B23) [*Direct Placement*]	12.3%	Chancellor's Office default placement rules per AB 705
Statistics (MATH B22 or PSYC B5), Math for Elem. Teachers (MATH B4A), or Finite Math (MATH B23) [*Placement with Support*]	67.3%	Chancellor's Office default placement rules per AB 705

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[1] Cf. Chancellor's Office memo from Executive Vice Chancellor Laura Hope released on July 10, 2018.

The percentages in Table 1 are derived from the observed characteristics of first-time students who were enrolled in fall 2018.[2] The distribution makes some assumptions about student choices when they are eligible for more than one pathway. It assumes that stronger students who are eligible for direct enrollment in the more advanced BSTEM coursework will take advantage of that opportunity (rather than opting for enrollment in Statistics). Students who are eligible for BSTEM math classes with support are forecast to enroll in those courses only if their major requires the STEM course. Other students are assumed to enroll in statistics (either with or without support, depending on their GPA), except for students whose program of study requires a specific math course, such as those with an Industrial Drawing or Elementary Teacher Education major.

The percentage distributions from Table 1 are applied to the forecast enrollment of first time students[3] in fall 2019 to derive the forecast demand for math courses that is shown in Table 2.

Table 2. Forecast demand for math courses in fall 2019

Initial Course Placement	% Eligible for Placement	Number Eligible for Placement in Fall 2019 (projected)
Precalculus II (MATH B1B) or Business Calculus (MATH B2) [*Direct Placement*]	10.3%	567
Precalculus I (MATH B1A) [*Direct Placement*]	4.6%	253
Precalculus I (MATH B1A) [*Placement with support*]	2.8%	154
Intermediate Alg. (MATH B70) [*Direct Placement*]	0.2%	11
Math for Elem. Teachers (MATH B4A) [*Direct Placement*]	2.8%	154
Statistics (MATH B22 or PSYC B5) or Finite Math (MATH B23) [*Direct Placement*]	12.4%	682
Statistics (MATH B22 or PSYC B5), Math for Elem. Teachers (MATH B4A), or Finite Math (MATH B23) [*Placement with Support*]	66.9%	3679

Projections are based on the 4,640 out of the 5,038 first-time students in fall 2018 who had a high school GPA records from either CalPASS or CCCApply.

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[2] 86.6% of fall 2018 first-time students had GPA data from either CalPASS or CCCApply;

[3] Headcount of first-time students in fall 2019 is forecast to be 5,500 based on enrollment trends.