Research question: What proportion of BC students can satisfy their programmatic math requirements by completing a Statistics class (i.e., MATH B22 or PSYC B5)?

We began the research project by compiling a list of all degree programs (AA, AS, AA-T, AS-T, BS) offered at Bakersfield College in 2016/17 and 2017/18. We then coded each program to track the lowest level of mathematics required in order to earn that specific degree. Five categories of math were coded:

- MATH B22/PSYC B5
- MATH B6a
- MATH B4A/MATH B23
- BSAD B51
- MATH B70

Programs that could be completed with the specified course(s) were marked with a “1” and those that required a different level math course were marked with a “0.” We then used the 2016/2017 and 2017/2018 Bakersfield College catalogs to determine the math requirements of the various programs. This process resulted in the development of a lookup table that could be applied to groups of students to determine the mix of students with various levels of required math.

Upon completion of this degree program list, we then pulled a list of students and their corresponding degree programs. This student list consisted of Bakersfield College students enrolled in fall 2017. We then added the same columns for the various mathematics courses that were added to the degree program list. Using both the degree program list and Bakersfield College catalogs dating back to 2014/2015 (used for discontinued programs), we were then able to determine which were the lowest level classes required for the specific degree completion.

After completing the coding of the 20,808 students enrolled as of the end of the second week of fall 2017, we then excluded 1,818 students with undeclared programs (i.e., Personal & Career Exploration students). The final analysis file thus included 18,990 students. The distribution of math requirements among fall 2017 students is shown in figure 1.

Figure 1. Distribution of math requirement per program of study for fall 2017 students with a declared program of study (n=18,890)
A large majority of students (73%) were following a program of study that would allow them to satisfy their math requirement with a Statistics course. The next largest group was students whose program of study required a Calculus math pathway (15%), followed by a group of students whose math requirement could be met with either MATH B4A (Math for Elementary Teachers) or MATH B23 (Finite Math). There were also a number of students in Accounting/Bookkeeping pathways who required BSAD B51 (Business Mathematics). Finally, a small number of students in one program (Industrial Technology: Industrial Drawing Option) specifically required MATH B70 (Intermediate Algebra) in order to fulfill their math requirements. Aside from the Industrial Technology: Industrial Drawing Option program, the other local GE programs allow a student to complete Statistics in lieu of the MATH B70 Intermediate statistics option. Thus, the answer to the research question “What proportion of BC students can satisfy their programmatic math requirements by completing a Statistics class (i.e., MATH B22 or PSYC B5)?” is approximately 73%.