



What's Happening

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Comparing enrollment, characteristics, and academic outcomes of students in developmental courses and those in credit-bearing courses at Northern Marianas College

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In collaboration with the Northern Mariana Islands College and Career Readiness Research Alliance

Key findings

The study reports on the academic outcomes of full-time first-time freshmen seeking an associate degree at Northern Marianas College. It compares students who were initially assessed as unready for college-level work in English or math courses and placed in noncredit developmental courses with those initially placed in credit-bearing courses. Students were tracked for eight semesters after enrollment. In English, 80 percent of entering students were placed in developmental courses. In math, 91 percent were. Overall, students initially placed in developmental courses had consistently worse academic outcomes than students initially placed in credit-bearing courses:

- By the third semester, fewer students initially placed in developmental courses than students initially placed in credit-bearing courses were still enrolled at the college.
- Within eight semesters, 39 percent of students initially placed in developmental English courses and 30 percent initially placed in developmental math courses had advanced to credit-bearing courses.
- Compared with students initially placed in credit-bearing courses, fewer students initially placed in developmental courses in either subject had graduated within eight semesters.

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Summary

Many students graduate from high school academically unprepared for college. When such students enroll in college as first-time freshmen, they are commonly placed in non-credit-bearing developmental English and math courses to develop the skills necessary to complete freshman-level credit-bearing courses.

Understanding students' college readiness and the outcomes for students placed in developmental courses is a high priority for policymakers, administrators, and educators in the Northern Mariana Islands. This study uses data on full-time first-time freshmen students who entered Northern Marianas College from the fall semester of 2008 through the fall semester of 2010 seeking an associate degree. Students who enrolled in at least one English or math course were tracked from their first semester at the college for eight semesters to follow their progress and learn their academic outcomes.

This study considered students as college ready if they were placed in a credit-bearing course in English or math in the first course they took in that subject (a common indicator of readiness; see Conley, 2007). The study compares the academic outcomes of students initially placed in developmental English or math courses with students initially placed in credit-bearing courses in those subjects. In particular, the study examines how many students were in each group and compares the groups' background characteristics and academic outcomes.

Findings from this study indicate that most students entering Northern Marianas College in 2008–10 were initially placed in non-credit-bearing developmental courses. More specifically:

- In English, 80 percent of full-time first-time freshmen students seeking associate degrees were placed in developmental courses. In math, 91 percent were placed in developmental courses.
- In English, female students, Pacific Islander and White students, students whose primary language spoken at home was English, students with less economic need (those who did not receive a Pell grant), and students from the Northern Mariana Islands were more likely to be placed in credit-bearing courses.
- In math, male students, Asian students, students whose primary language spoken at home was not local to the Northern Marianas Islands, students with less economic need, and international students were more likely to be placed in credit-bearing courses.

In addition, students initially placed in developmental English or math courses consistently had worse academic outcomes during their enrollment at Northern Marianas College than did students in credit-bearing English or math courses:

- *Continued enrollment.* By the third semester, 47 percent of students initially placed in developmental courses in English were still enrolled compared with 62 percent of students in credit-bearing English courses; 56 percent of students initially placed in developmental courses in math were still enrolled compared with 75 percent of students in credit-bearing math courses.
- *Advancing from developmental to credit-bearing courses.* Within eight semesters, 39 percent of students initially placed in developmental courses in English and

30 percent of students initially placed in developmental courses in math had advanced to credit-bearing courses in each subject.

- *Graduation.* Within eight semesters, 9 percent of students initially placed in developmental courses in English graduated compared with 32 percent of students in credit-bearing English courses; about 14 percent of students initially placed in developmental courses in math graduated in that time compared with 46 percent of students in credit-bearing math courses.

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Why this study?

Many students graduate from high school academically unprepared for college. Students enrolling in college who are assessed as unprepared are commonly placed in non-credit-bearing, or developmental, English and math courses (see box 1 for definitions of key terms). As many as 60–70 percent of students at community colleges across the United States are placed in one or more developmental courses (Bailey, 2009a; Porter & Polikoff, 2012; Radford, Pearson, Ho, Chambers, & Ferlazzo, 2012).

Research indicates that students who are placed in one or more developmental courses are typically less successful in college than peers who are placed only in credit-bearing courses. Students placed in developmental courses take longer to graduate than do students in credit-bearing courses (Bettinger & Long, 2005) and have lower graduation rates (Bailey, 2009a; Jaggars & Stacey, 2014). In a study based on a nationally representative sample using National Education Longitudinal Study data for 1992–2000, less than 25 percent of community college students who were placed in developmental courses earned a degree within eight years of enrollment, compared with almost 40 percent of students who were not placed in any developmental courses (Bailey, 2009b).

The Northern Mariana Islands Alliance for College and Career Readiness, composed of stakeholders from the K–12, college, and government sectors, is concerned about the number of high school graduates who are unprepared for college and therefore placed in developmental courses. They are concerned about the academic outcomes of those students at Northern Marianas College, the only publicly funded postsecondary institution in the Northern Mariana Islands. The college is primarily a two-year institution, though it awards four-year degrees for a few majors.

Northern Marianas College is implementing a five-year strategic plan for 2015–20 that includes a commitment to reduce the time it takes students to graduate (Northern Marianas College, 2015). The plan also includes a commitment to increase retention and simplify pathways to a degree for students who are placed in developmental courses. Finally, the plan gives priority to collaboration with the public K–12 systems to better prepare students for college.

The Northern Mariana Islands Alliance for College and Career Readiness requested assistance from Regional Educational Laboratory (REL) Pacific in obtaining information about the current state of college readiness and success in the Northern Mariana Islands. To date, Northern Marianas College has not been able to report systematically on the academic outcomes and background characteristics of students placed in developmental English and math courses or compare them with students in credit-bearing courses. Data are not integrated in one central management system, so enrollment data, for example, are not linked to course placement or financial aid data. An important step toward improving student outcomes is to have access to linked high-quality baseline data from all these disparate sources. There have been widespread demographic shifts in the Northern Mariana Islands within the last decade, with an influx of immigrants (Encinares, 2016). The demographic profiles of the students in the public school system and at Northern Marianas College are changing. The alliance is interested in how these demographic shifts are affecting college and career readiness and success. This study provides baseline information that can help the research alliance gauge the impact of its improvement efforts and inform changes to policies and practices in the Northern Mariana Islands.

This study provides baseline information that can help gauge the impact of improvement efforts and inform changes to policies and practices to reduce the time it takes college students to graduate and to increase retention and simplify pathways to a degree for students who are placed in developmental courses

Box 1. Key terms

College readiness. Determined by initial placement in credit-bearing English or math courses, one of the most common indicators of college readiness. Students who were placed in any developmental English or math course were considered not ready for college in that subject.

Credit-bearing courses. College-level courses for which students who receive a passing grade earn credits toward a degree. A credit-bearing course at Northern Marianas College typically offers three or four credits.

Cumulative college credits earned. The total number of college credits accumulated at Northern Marianas College by the end of each semester.

Cumulative grade point average. The average of course grades for all credit-bearing courses at the end of each semester (A = 4, B = 3, C = 2, D = 1, F = 0).

Developmental courses. Courses designed to prepare students for college-level courses. Students do not earn credits toward a degree by passing these courses. Sometimes referred to as remedial courses.

First-time freshmen. Incoming students at Northern Marianas College who are attending college for the first time (for more information about how students were identified as first-time freshmen, see appendix A).

Full-time students. Students placed in courses bearing a total of at least 12 credits in their first semester.

Graduation rate. The percentage of students who enter Northern Marianas College as freshmen seeking associate degrees who graduate within eight semesters at Northern Marianas College. Eight semesters is twice the expected time needed to earn an associate degree.

International students. Students studying at Northern Marianas College on a foreign visa.

Pell grant status. Whether students received financial aid in the form of a Pell grant, considered an indicator of economic need.

Retention rate. The percentage of students who entered college in the same semester and were still enrolled at the start of a later given semester, an indicator of education persistence. In this study, retention rates were reported semester by semester for eight semesters after initial enrollment.

Students placed in a credit-bearing course. Students who were initially placed in a credit-bearing English or math course. A student could initially be placed in a credit-bearing course in one subject (for example, English) and in a developmental course in the other (math).

Students placed in a developmental course. Students who were initially placed in a developmental English or math course. A student could initially be placed in a developmental course in one subject (for example, English) and in a credit-bearing course in the other (math). Some students who were initially placed in a developmental course advanced to credit-bearing courses in later semesters.

Time to degree. The number of semesters from a student's first semester to the semester in which the student earns an associate degree.

What the study examined

The study explored the college readiness, background characteristics, and academic outcomes of full-time first-time freshmen seeking associate degrees who entered Northern Marianas College from the fall semester of 2008 through the fall semester of 2010. Students who were placed in at least one English or math course were tracked for eight semesters from their first semester at Northern Marianas College, regardless of whether they were continuously enrolled during the subsequent eight semesters.

This study considered students as college ready if they were placed in a credit-bearing course in English or math in the first course they took in that subject (a common indicator of readiness; see Conley, 2007). Placement in developmental or credit-bearing English and math courses was determined largely by placement exams that entering students are required to take (box 2). To graduate from Northern Marianas College, students must pass at least one credit-bearing English and math course and fulfill all other graduation requirements.

The study addressed three research questions:

- What percentage of full-time first-time freshmen seeking an associate degree were initially placed in developmental English or math courses, and what percentage were placed in credit-bearing courses?
- What were the background characteristics of full-time first-time freshmen seeking associate degrees who were initially placed in developmental English or math courses and those of students initially placed in credit-bearing courses? Six student background characteristics were examined: gender, race/ethnicity, primary language spoken at home, receipt of a Pell grant (an indicator of economic need), and international student status.
- What were the academic outcomes of full-time first-time freshmen seeking an associate degree who were initially placed in developmental English or math courses and those of students initially placed in credit-bearing courses? Academic outcomes included passing rates in students' first credit-bearing English and math course, average number of college credits earned, cumulative grade point average, retention rate, graduation rate, and time to degree. Academic outcomes related only to students initially placed in developmental courses included percentage of students who advanced from developmental to credit-bearing courses, level of initial placement in developmental courses, failure rates in developmental courses, and average number of developmental courses attempted.

Information about placement and developmental courses is presented in box 2. The study data and methods are described in box 3 and detailed in appendix A.

This report provides detailed findings about the college readiness of incoming students and compares the background characteristics and academic outcomes of students who started at Northern Marianas College in developmental English or math courses and those who started in credit-bearing courses

Box 2. Developmental education at Northern Marianas College

English and math placement

During 2008–10, entering students at Northern Marianas College took English and math placement exams developed by its faculty to determine their placement in either developmental or credit-bearing courses. A few students who received a score of a 4 or a 5 on a five-point scale on an Advanced Placement English or math exam in high school did not have to take the placement exam but were placed directly in credit-bearing courses. In rare cases, college advisors or faculty may have influenced initial course placement. So a small number of students whose placement exam scores would have placed them in developmental English or math courses were enrolled in credit-bearing courses; the study treats those students as having been placed in credit-bearing courses.

The English developmental course sequence (reading and writing)

English developmental courses include seven reading and writing courses (Beginning English: Reading and Writing; Reading and Vocabulary Development I, II, and III; and Writing and Grammar Study I, II, and III). Some students were required to complete one or two developmental English courses, while other students who started in the lowest level developmental reading and developmental writing courses were required to complete all seven developmental English courses before advancing to credit-bearing English. In a given semester students could enroll in up to two required developmental English courses—one in reading and one in writing. Developmental speaking/listening courses were also offered at the college, but because students were not required to take the courses to advance to credit-bearing courses, these courses were not included in the study.

The math developmental course sequence

The developmental course sequence is clearer and shorter in math than in English: Basic Math, Pre-algebra, and Beginning Algebra. Students placed in the lowest math course, Basic Math, would be required to pass all three developmental math courses before advancing to credit-bearing math courses. Students could enroll in only one developmental math course per semester.

Advancing from developmental to credit-bearing courses

To advance to a credit-bearing course, students are required to pass all developmental courses in which they are placed. Developmental courses are graded as pass/fail, and all include a final exam as part of the course grade. Students who fail a developmental course are required to repeat it until they pass. Although students can register for some credit-bearing courses in subjects other than English or math while they are completing the developmental sequences, credit-bearing English or math courses are prerequisites for most courses at the college, including required courses for all majors. So students taking developmental courses can acquire credits only for elective courses until they complete the developmental sequences. To graduate from Northern Marianas College students must pass at least one credit-bearing English course and one credit-bearing math course and fulfill all other graduation requirements.

Box 3. Data and methods

Data

Administrators and faculty at Northern Marianas College, who are members of the Northern Mariana Islands Alliance for College and Career Readiness, provided data for the study. The study team linked the data across the files to construct the comprehensive dataset used in the study (for more information on the data, see appendix A).

Students who enrolled in at least one English or math course were tracked for eight semesters from their first semester at Northern Marianas College in 2008–10, regardless of whether students were continuously enrolled during all of the subsequent eight semesters.

To determine college readiness in English and math, the study team analyzed initial course enrollment data to ascertain whether students were placed in credit-bearing or developmental courses. Students who were placed only in credit-bearing English or math courses were considered college-ready in those subjects. Students who were placed in at least one developmental English or math course were considered not college-ready in that subject.

Background characteristics data came from application forms, financial aid forms, and other college registration forms.

Methods

Samples. There were two samples, one for English and one for math. Many students enrolled in both English and math courses, but not all. Students were included in the sample if they were placed in any English or math course at the college, registered for 12 or more credits in their first semester (full-time status), were first-time freshmen, and indicated that they were seeking an associate degree. Students seeking a bachelor's degree were excluded because they could not be tracked for as long as the study called for—twice the expected time to degree—which in their case would be 16 semesters. Only students who were full-time for their first semester were included (students may have switched to part time in later semesters). The inclusion criteria were met by 652 students in English and 489 students in math. For a summary of the steps taken to identify the samples, see appendix A. For more information on all entering first-time freshmen seeking associate degrees at Northern Marianas College, see table B1 in appendix B.

Research design. To address all three research questions, students were classified as placed in developmental courses or in credit-bearing courses based on their initial English or math course enrollment. Courses with catalog numbers of 100 or greater were recorded as credit-bearing, and courses with numbers below 100 were recorded as developmental. Descriptive statistics were generated to portray the background characteristics of students in developmental or in credit-bearing English and math courses.

To examine student academic outcomes, the study team tracked students for eight semesters (four academic years) from the semester they first entered Northern Marianas College, which is twice as long as the expected time to an associate degree. Students whose first semester was in fall 2008 were tracked through the spring 2012 semester. Students whose first semester was fall 2010 were tracked through the spring 2014 semester. Academic outcomes were tracked for eight semesters regardless of whether students were continuously enrolled at Northern Marianas College after their first semester. Descriptive analyses were generated for the English and math samples and for students placed in developmental courses and students placed in credit-bearing courses.

What the study found

The following section provides detailed findings about the college readiness of incoming students and compares the background characteristics and academic outcomes of students who started at Northern Marianas College in developmental English or math courses and students who started in credit-bearing courses.

Fewer students were college ready in math than in English

In English, 80 percent of students in the sample placed in a developmental course; in math, 91 percent did (table 1). The corresponding percentages for placement in credit-bearing courses were 20 percent in English and 9 percent in math.

Some background characteristics differed for students initially placed in developmental courses and for students initially placed in credit-bearing courses

This study examined differences in the demographic characteristics of students initially placed in credit-bearing courses and students initially placed in developmental courses. In English, female students, Pacific Islander and White students, students whose primary language spoken at home was English, students with less economic need (those who did not receive Pell grants), and students from the Northern Mariana Islands were more likely to be placed in credit-bearing English courses (table 2).

In math, male students, Asian students, students whose primary language spoken at home was not local to the Northern Marianas Islands, students with less economic need, and international students were more likely to be placed in credit-bearing math courses (table 3).

Students who advanced from developmental courses to credit-bearing courses in English and math passed the credit-bearing courses at rates similar to students initially placed in credit-bearing courses

Although a majority of students who were initially placed in developmental courses in English or math never enrolled in a credit-bearing course in the same subject area, among those who did the passing rates were similar to the passing rates of students initially placed

A majority of students who were initially placed in developmental courses in English or math never enrolled in a credit-bearing course in the same subject area

Table 1. Initial placement in developmental and credit-bearing English and math courses of Northern Marianas College students, fall 2008–fall 2010

Initial course enrollment	Student placement	
	Percent	Number
English (<i>n</i> = 652)		
Developmental	80.1	522
Credit-bearing	19.9	130
Math (<i>n</i> = 489)		
Developmental	91.0	445
Credit-bearing	9.0	44

Note: Sample includes students who were placed in at least one English or math course within eight semesters of their first semester. A total of 744 students enrolled at the college as full-time first-time freshmen seeking associate degrees between fall 2008 and fall 2010; of these, 652 students were placed in an English course, and 489 in a math course.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

Table 2. Initial placement in developmental and credit-bearing English courses of Northern Marianas College students, by background characteristics, 2008/09–2013/14

Student characteristic	Developmental English (percent)	Credit bearing English (percent)	Number of students
Gender			
Female	78.6	21.4	369
Male	82.0	18.0	283
Race/ethnicity^a			
Asian	82.8	17.2	163
Pacific Islander	79.6	20.4	357
White	^b	^b	7
Missing data	82.0	18.0	122
Primary language spoken at home			
Carolinian	88.6	11.4	44
Chamorro	78.5	21.5	242
English	73.1	26.9	130
Tagalog	79.8	20.2	109
Other ^c	87.4	12.6	127
Pell grant status^d			
Received	79.0	21.0	510
Did not receive	69.0	31.0	58
International status			
International student	89.9	10.1	99
Northern Mariana Islands student	78.3	21.7	553

a. Numbers do not sum to 652 because racial/ethnic categories with fewer than 5 students were not reported to protect student confidentiality.

b. Data were suppressed to protect student confidentiality.

c. Includes Bangla or Bengali, Belauan, Cantonese, Chinese, Chuukese, Fijian, Japanese, Korean, Kosraean, Marshallese, Nepali, Pohnpeian, Russian, Thai, and Yapese languages.

d. Excludes international students who maintained international status while at Northern Marianas College. International students are not eligible for Pell grants.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

A higher percentage of students failed their first credit-bearing English course than their first credit-bearing math course

in credit-bearing courses. For example, 71 percent of students initially placed in a developmental English course passed their first credit-bearing English course by earning an A, B, C, or D, compared with 70 percent of students initially placed in a credit-bearing English course (figure 1). Similarly, 90 percent of students initially placed in a developmental math course passed their first credit-bearing math course compared with 93 percent of students initially placed in a credit-bearing math course (figure 2). In both English and math, the percentage of students who earned an A in their first credit-bearing course was higher among students initially placed in a credit-bearing course than among students initially placed in a developmental course.

A higher percentage of students failed their first credit-bearing English course than their first credit-bearing math course. The percentage of students initially placed in a developmental English course who failed their first credit-bearing English course was about three times as great as the percentage of students initially placed in a developmental math course who failed their first credit-bearing math course.

Table 3. Initial placement in developmental and credit-bearing math courses of Northern Marianas College students, by background characteristics, 2008/09–2013/14

Student characteristic	Developmental math (percent)	Credit-bearing math (percent)	Number of students
Gender			
Female	93.5	6.5	275
Male	87.9	12.1	214
Race/ethnicity^a			
Asian	81.6	18.4	103
Pacific Islander	96.4	3.6	276
White	^b	^b	6
Missing data	87.1	12.9	101
Primary language spoken at home			
Carolinian	100	0	32
Chamorro	95.8	4.2	189
English	93.1	6.9	102
Tagalog	91.2	8.8	91
Other ^c	72.0	28.0	75
Pell grant status^d			
Received	95.5	4.5	404
Did not receive	91.5	8.5	47
International status			
International students	54.9	45.1	51
Northern Mariana Islands students	95.2	4.8	438

a. Numbers do not sum to 489 because racial/ethnic categories with fewer than 5 students were not reported to protect student confidentiality.

b. Data were suppressed to protect student confidentiality.

c. Includes Bangla or Bengali, Belauan, Cantonese, Chinese, Chuukese, Fijian, Japanese, Korean, Kosraean, Marshallese, Nepali, Pohnpeian, Thai, and Yapese languages.

d. Excludes international students who maintained international status while at Northern Marianas College. International students are not eligible for Pell grants.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

Students initially placed in developmental courses earned fewer credits and had a lower cumulative grade point average than did students placed in credit-bearing courses

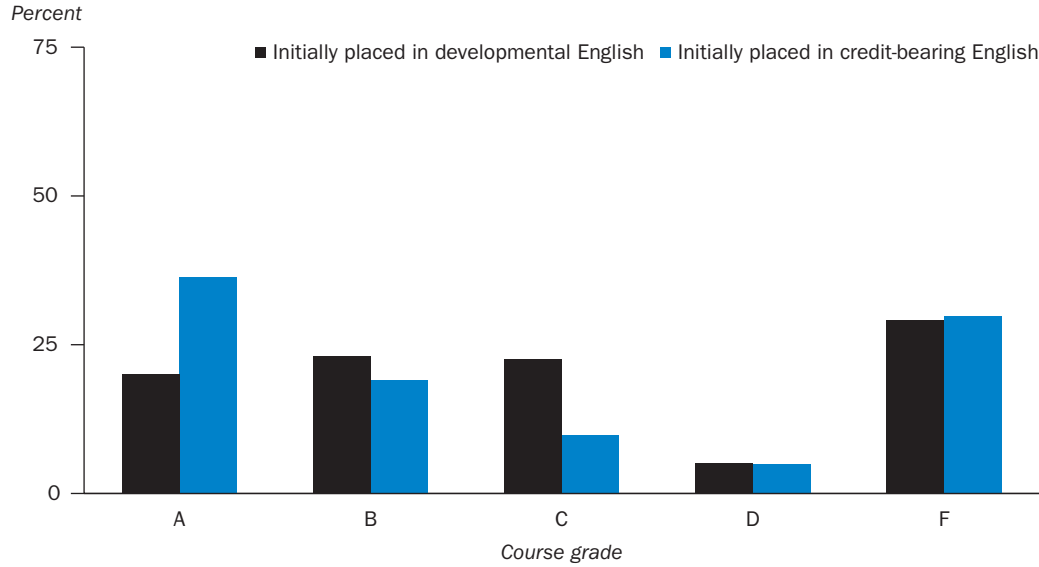
Students initially placed in developmental courses in English earned 8 credits on average in every semester in which they were enrolled compared with 10 credits for students initially placed in credit-bearing courses. Students in developmental math courses earned 8 credits on average per semester compared with 13 credits for students initially placed in credit-bearing math courses. Over time, students initially placed in developmental courses who remained enrolled earned fewer cumulative credits than did students in credit-bearing courses (figures 3 and 4). Students initially placed in developmental courses had a lower cumulative grade point average than did their peers in credit-bearing courses (figures 5 and 6).¹

By the third semester, fewer students initially placed in developmental courses than students initially placed in credit-bearing courses were still enrolled at the college

By the end of the eighth semester most students were no longer enrolled and had not graduated

By the third semester, 47 percent of students initially placed in developmental English courses and 62 percent of students initially placed in credit-bearing English courses were

Figure 1. Grades earned in first credit-bearing English course at Northern Marianas College, by initial placement in developmental or credit-bearing English courses, 2008/09–2013/14

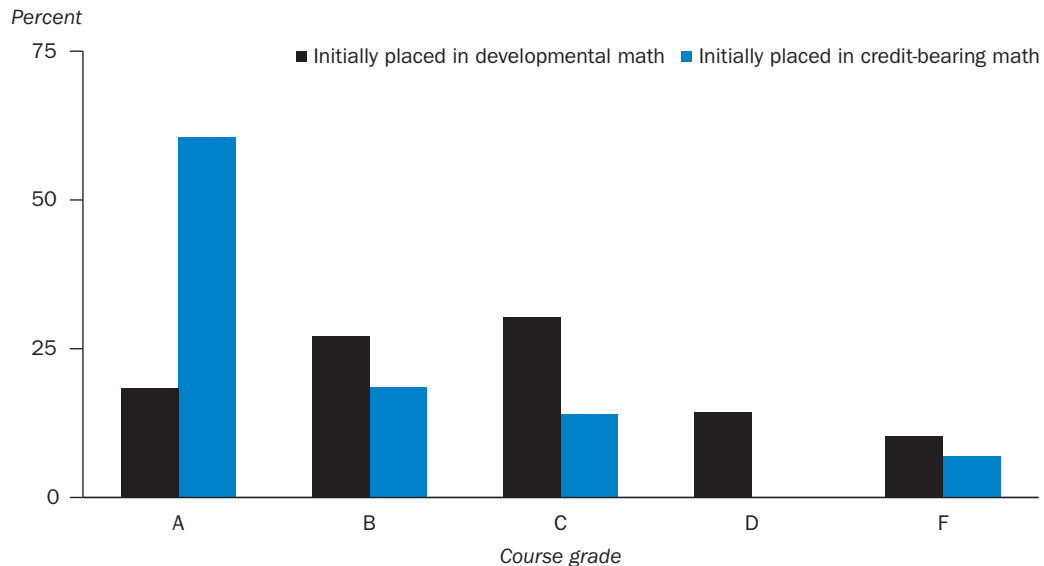


A higher percentage of students failed their first credit-bearing English course than their first credit-bearing math course

Note: $n = 195$ students initially placed in developmental English courses, and $n = 121$ students initially placed in credit-bearing English courses. Fifteen students received a pass/fail grade (no letter grade) in a credit-bearing English course and were excluded from this analysis. For two students who took two credit-bearing English courses in their first semester, the grades earned in the two courses were averaged for this analysis. Students whose grade was listed as withdrawal, unofficial withdrawal, technical failure, incomplete, or not passed were treated as receiving an F grade.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

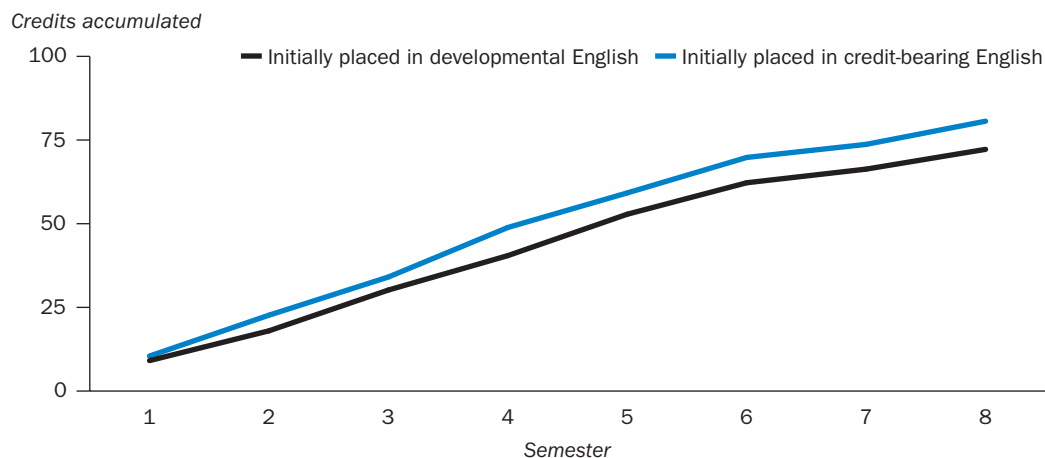
Figure 2. Grades earned in first credit-bearing math course at Northern Marianas College, by initial placement in developmental or credit-bearing math courses, 2008/09–2013/14



Note: $n = 125$ students initially placed in developmental math courses and $n = 43$ students initially placed in credit-bearing math courses. Two students received a pass/fail grade (no letter grade) in a credit-bearing math course and were excluded from this analysis. Students whose grade was listed as withdrawal, unofficial withdrawal, technical failure, incomplete, or not passed were treated as receiving an F grade.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

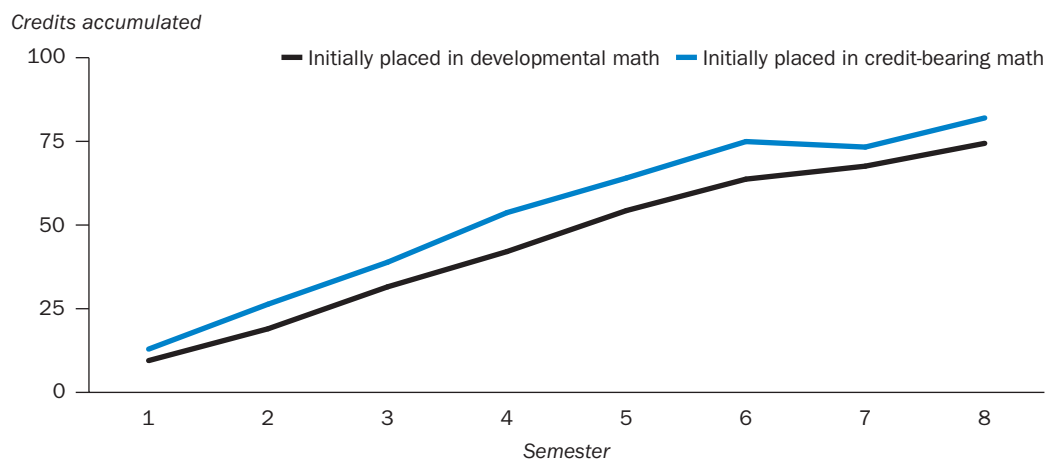
Figure 3. Average cumulative credits earned by Northern Marianas College students, by semester and initial placement in developmental or credit-bearing English courses, 2008/09–2013/14



Note: At least 60 credits are needed to earn an associate degree at Northern Marianas College; the number varies by major. Nursing students, for example, must complete 78 credits to earn an associate degree. Cumulative credits are reported only for students who were initially placed in an English class and who were still enrolled in a given semester; cumulative credits are not reported for students in the semesters after they graduate. Therefore, sample sizes vary by semester. For developmental English courses, $n = 522$ for semester 1; $n = 414$ for semester 2; $n = 245$ for semester 3; $n = 194$ for semester 4; $n = 137$ for semester 5; $n = 116$ for semester 6; $n = 98$ for semester 7; and $n = 79$ for semester 8. For credit-bearing English courses $n = 130$ for semester 1; $n = 101$ for semester 2; $n = 81$ for semester 3; $n = 69$ for semester 4; $n = 50$ for semester 5; $n = 39$ for semester 6; $n = 20$ for semester 7; and $n = 16$ for semester 8.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

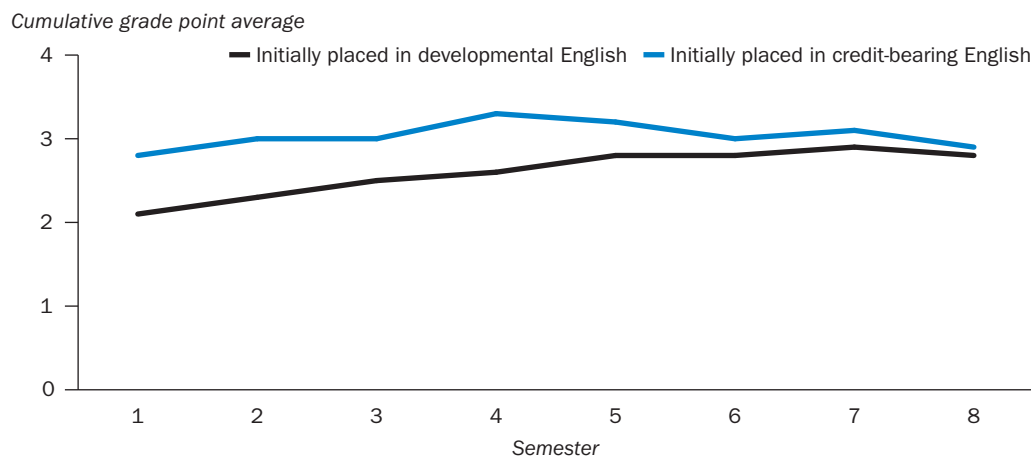
Figure 4. Average cumulative credits earned by Northern Marianas College students, by semester and initial placement in developmental or credit-bearing math courses, 2008/09–2013/14



Note: At least 60 credits are needed to earn an associate degree at Northern Marianas College; the number varies by major. Nursing students, for example, must complete 78 credits to earn an associate degree. Cumulative credits are reported only for students who were initially placed in a math class and who were still enrolled in a given semester; cumulative credits are not reported for students in the semesters after they graduate. Therefore, sample sizes vary by semester. For developmental math students $n = 445$ for semester 1; $n = 375$ for semester 2; $n = 251$ for semester 3; $n = 213$ for semester 4; $n = 160$ for semester 5; $n = 132$ for semester 6; $n = 110$ for semester 7; and $n = 86$ for semester 8. For credit-bearing math $n = 44$ for semester 1; $n = 39$ for semester 2; $n = 33$ for semester 3; $n = 31$ for semester 4; $n = 19$ for semester 5; $n = 17$ for semester 6; $n = 7$ for semester 7; and $n = 7$ for semester 8.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

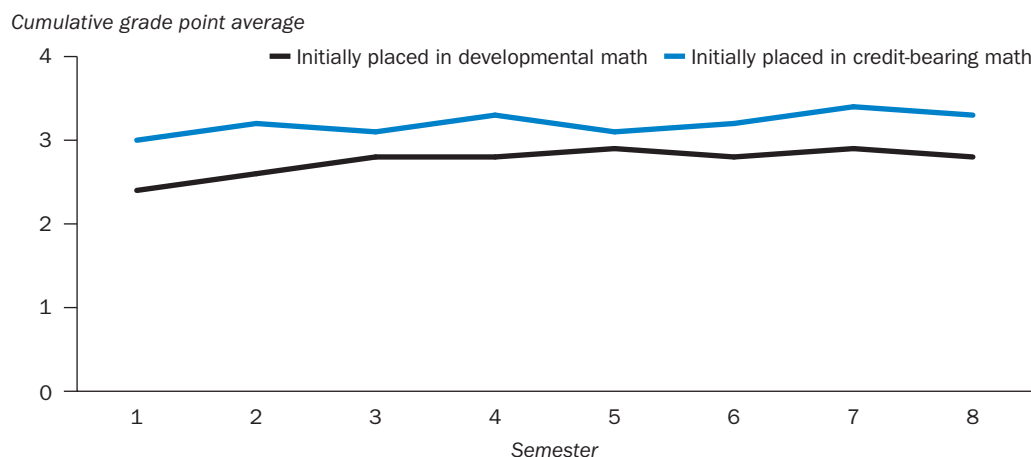
Figure 5. Cumulative grade point average of Northern Marianas College students, by semester and initial placement in developmental or credit-bearing English courses, 2008/09–2013/14



Note: A total of 45 students were missing cumulative grade point average data in the English sample. For developmental English students, $n = 479$ for semester 1; $n = 400$ for semester 2; $n = 242$ for semester 3; $n = 192$ for semester 4; $n = 136$ for semester 5; $n = 115$ for semester 6; $n = 98$ for semester 7; and $n = 79$ for semester 8. For credit-bearing English students, $n = 128$ for semester 1; $n = 101$ for semester 2; $n = 81$ for semester 3; $n = 69$ for semester 4; $n = 50$ for semester 5; $n = 39$ for semester 6; $n = 20$ for semester 7; and $n = 16$ for semester 8. Cumulative grade point average does not include developmental courses or other courses graded on a pass/fail basis; otherwise, all credit-bearing courses are included. Cumulative grade point averages are reported only for students who were initially placed in an English class and who were still enrolled in a given semester and are not included for students who graduated in an earlier semester. Therefore, sample sizes vary by semester.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

Figure 6. Cumulative grade point average of Northern Marianas College students, by semester and initial placement in developmental or credit-bearing math courses, 2008/09–2013/14



Note: A total of 10 students were missing cumulative grade point average data in the math sample. For developmental math students, $n = 435$ for semester 1; $n = 375$ for semester 2; $n = 251$ for semester 3; $n = 213$ for semester 4; $n = 160$ for semester 5; $n = 132$ for semester 6; $n = 110$ for semester 7; and $n = 86$ for semester 8. For credit-bearing math students, $n = 44$ for semester 1; $n = 39$ for semester 2; $n = 33$ for semester 3; $n = 31$ for semester 4; $n = 19$ for semester 5; $n = 17$ for semester 6; $n = 7$ for semester 7; and $n = 7$ for semester 8. Cumulative grade point average does not include developmental courses or other courses graded on a pass/fail basis; otherwise, all credit-bearing courses are included. Cumulative grade point averages are reported only for students who were initially placed in a math class and who were still enrolled in a given semester and are not included for students who graduated in an earlier semester. Therefore, sample sizes vary by semester.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

still enrolled at Northern Marianas College (figure 7). In math, 56 percent of students initially placed in developmental courses and 75 percent of students initially placed in credit-bearing courses were still enrolled (figure 8).

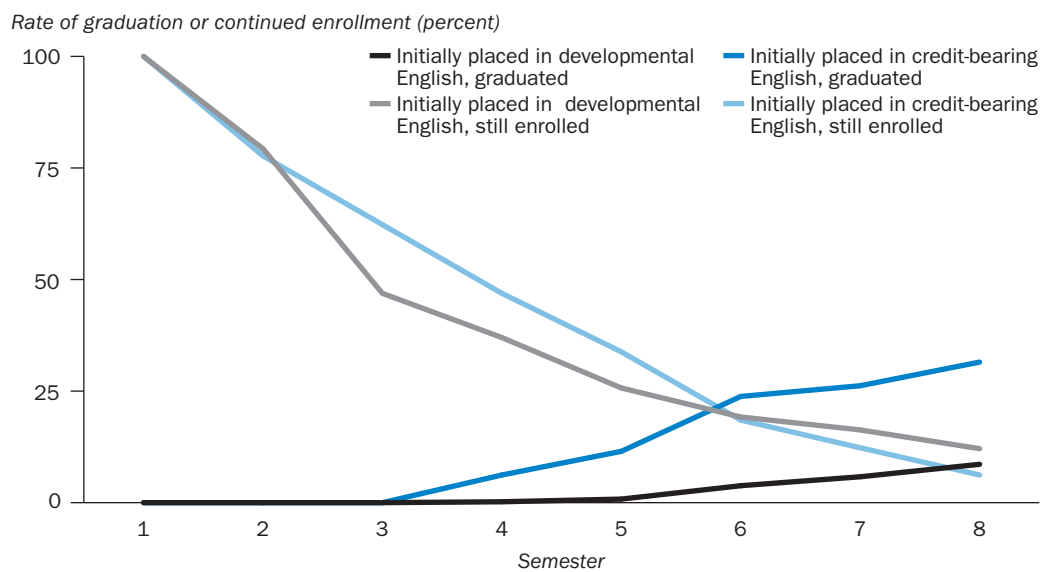
Through the end of the eighth semester, enrollment continued to decline for both groups of students. In English, about 80 percent of students initially placed in developmental courses were no longer enrolled and had not graduated, compared with 62 percent of students initially placed in credit-bearing courses (figure 9). In math, 71 percent of students initially placed in developmental courses were no longer enrolled and had not graduated, compared with 43 percent of students initially placed in credit-bearing courses.

Students initially placed in developmental courses were much less likely to graduate within 8 semesters than students initially placed in credit-bearing courses

In both English and math, students initially placed in developmental courses had much lower graduation rates than students in credit-bearing courses (see figures 7 and 8). In English, 9 percent of students initially placed in developmental courses graduated by their eighth semester compared with 32 percent of students in credit-bearing courses (see figures 7 and 9). The differences in graduation rates were even larger in math: 14 percent of students initially placed in developmental math courses graduated by their eighth semester compared with 46 percent of students initially placed in credit-bearing math courses (see figures 8 and 9).

By the end of the eighth semester about 80 percent of students initially placed in developmental English courses and 71 percent initially placed in developmental math courses were no longer enrolled and had not graduated

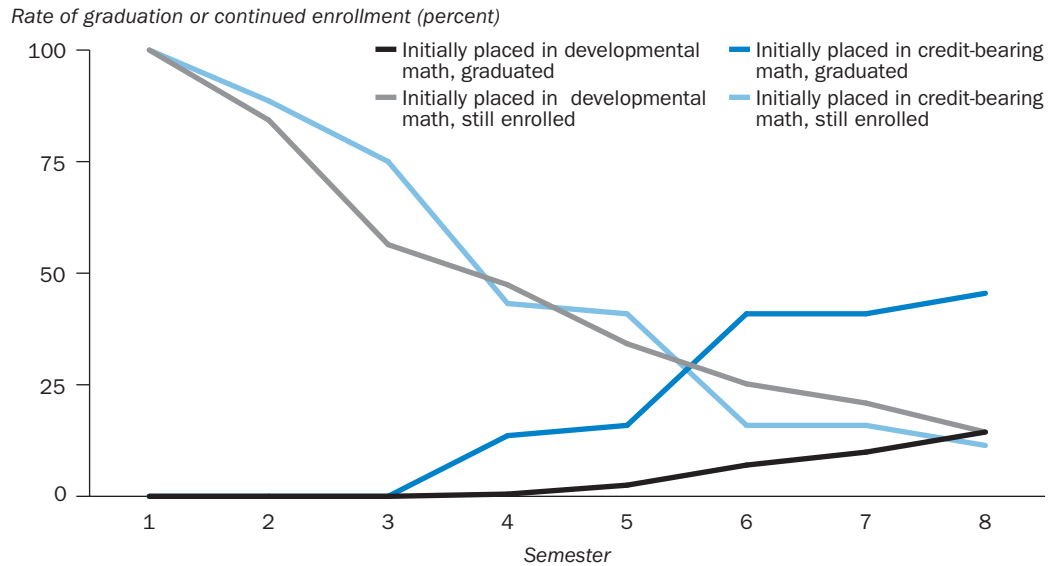
Figure 7. Enrollment and graduation rates for Northern Marianas College students, by initial placement in developmental or credit-bearing English courses, 2008/09–2013/14



Note: $n = 522$ for initial placement in developmental English courses, and $n = 130$ for initial placement in credit-bearing English courses.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

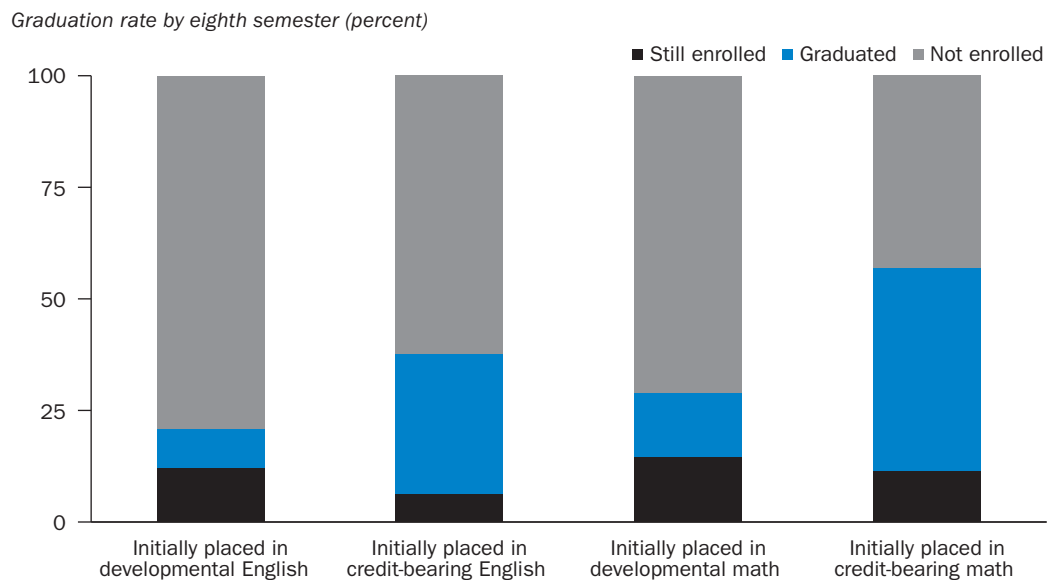
Figure 8. Enrollment and graduation rates for Northern Marianas College students, by initial placement in developmental or credit-bearing math courses, 2008/09–2013/14



Note: $n = 445$ for initial placement in developmental math courses, and $n = 44$ for initial placement in credit-bearing math courses.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

Figure 9. Enrollment and graduation outcomes of Northern Marianas College students, by initial placement in developmental or credit-bearing English or math courses, 2008/09–2013/14



Note: $n = 522$ for initial placement in developmental English courses, $n = 130$ for initial placement in credit-bearing English courses, $n = 445$ for enrollment in developmental math courses, and $n = 44$ for enrollment in credit-bearing math courses.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

Students initially placed in developmental courses took longer to earn an associate degree, on average, than did students initially placed in credit-bearing courses

Among students who graduated, students initially placed in developmental courses in either English or math took about one semester longer to earn an associate degree (almost seven semesters) than did students initially placed in credit-bearing courses (under six semesters; table 4). This difference in time to degree may be related to the extra time required for students placed in non-credit-bearing developmental courses to complete them before proceeding to credit-bearing courses.

Most students initially placed in a developmental course in English or math never advanced to a credit-bearing course in that subject

Within eight semesters, 39 percent of students initially placed in developmental English courses advanced to credit-bearing courses in English (figure 10), and 30 percent of students initially placed in developmental math courses advanced to credit-bearing courses in math (figure 11). In general, most students who were initially placed in developmental courses and who managed to advance to credit-bearing courses did so by their fourth semester.

Students who advanced from developmental to credit-bearing courses were more likely to initially be placed in higher level developmental reading, writing, and math courses than students who did not advance

In reading, 68 percent of students who later advanced to credit-bearing English were initially placed in the highest level of developmental reading compared with 29 percent of students who did not advance within 8 semesters (table 5). Similarly in writing, 67 percent of those who later advanced to credit-bearing English were initially placed in the highest level of developmental writing, compared with 32 percent of students who did not advance (table 6). In math, 46 percent of students who later advanced to credit-bearing math were placed in the highest level of developmental math compared with 9 percent of those who did not advance (table 7).

Many students failed their first developmental courses, but students who advanced from developmental to credit-bearing courses had lower failure rates than students who did not advance

The overall failure rates were lower in developmental reading and writing courses (from 9 percent to 40 percent; see tables 5 and 6) than in developmental math courses (from

Among students who graduated, students initially placed in developmental courses in either English or math took about one semester longer to earn an associate degree than did students initially placed in credit-bearing courses

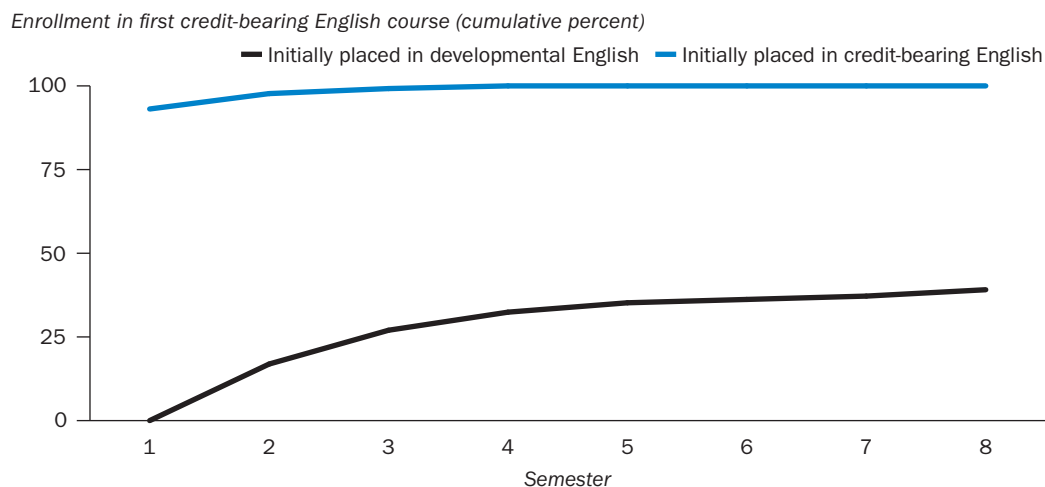
Table 4. Time to earn an associate degree for Northern Marianas College students, by initial placement in developmental English or math courses and in credit-bearing courses, 2008/09–2013/14

Initial course enrollment	Average number of semesters completed before graduating	Number of graduates
Developmental English	6.8	45
Credit-bearing English	5.9	41
Developmental math	6.6	64
Credit-bearing math	5.6	20

Note: Some students may have transferred to another college and earned a degree, a status that could not be tracked in this study.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

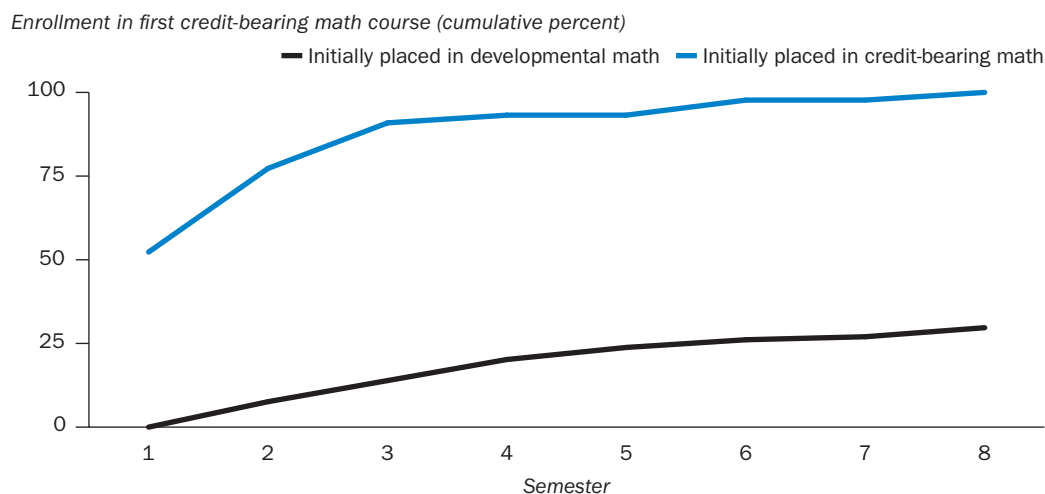
Figure 10. Cumulative percentage of Northern Marianas College students enrolled in their first credit-bearing English course, by semester and initial placement in developmental or credit-bearing English courses, 2008/09–2013/14



Note: Students were not required to enroll in English courses in their first semester, which is why the cumulative percentage of students placed in credit-bearing courses is less than 100 in some semesters.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

Figure 11. Cumulative percentage of Northern Marianas College students enrolled in their first credit-bearing math course, by semester and initial placement in developmental or credit-bearing math courses, 2008/09–2013/14



Note: Students were not required to enroll in math courses in their first semester, which is why the cumulative percentage of students placed in credit-bearing courses is less than 100 in some semesters.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

33 percent to 72 percent; see table 7). Students who succeeded in developmental courses and advanced to credit-bearing courses were less likely to have failed their first developmental reading, writing, or math courses than were their peers who did not advance to credit-bearing courses by their eighth semester (see tables 5–7). For example, no students initially placed in Reading and Vocabulary Development II who later advanced to credit-bearing English

Table 5. Initial placement of Northern Marianas College students in developmental reading courses and failure rates, 2008/09–2013/14

Developmental reading course	Of students initially placed in a developmental reading course (n = 392)		Of students who advanced to credit-bearing courses within 8 semesters (n = 134)		Of students who did not advance to credit-bearing courses within 8 semesters (n = 258)	
	Percentage initially placed in this course	Percentage who failed this course	Percentage initially placed in this course	Percentage who failed this course	Percentage initially placed in this course	Percentage who failed this course
Beginning English: Reading and Writing	4.3	^a	^a	0	5.8	^a
Reading and Vocabulary Development I	20.7	28.4	^a	0	26.7	31.9
Reading and Vocabulary Development II	32.7	38.2	21.6	0	38.4	49.5
Reading and Vocabulary Development III	42.3	39.8	67.9	23.1	29.1	60.0

Note: Courses are listed from the lowest level developmental course to the highest. The sample includes only students initially placed in a developmental reading course. They may also have initially been placed in a writing or listening/speaking course in the same semester.

a. Data were suppressed to protect student confidentiality.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

Table 6. Initial placement of Northern Marianas College students in developmental writing courses and failure rates, 2008/09–2013/14

Developmental writing course	Of students initially placed in a developmental writing course (n = 397)		Of students who advanced to credit-bearing courses within 8 semesters (n = 154)		Of students who did not advance to credit-bearing courses within 8 semesters (n = 243)	
	Percentage initially placed in this course	Percentage who failed this course	Percentage initially placed in this course	Percentage who failed this course	Percentage initially placed in this course	Percentage who failed this course
Writing and Grammar Study I	13.3	9.4	5.2	0	18.5	15.6
Writing and Grammar Study II	41.1	27.0	27.9	^a	49.4	35.8
Writing and Grammar Study III	45.6	28.2	66.9	5.8	32.1	57.7

Note: Courses are listed from the lowest level developmental course to the highest. The sample includes only students initially placed in a developmental writing course. They may also have initially been placed in a writing or listening/speaking course in the same semester.

a. Data were suppressed to protect student confidentiality.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

failed that course. In contrast, 50 percent of students initially placed in the course who did not advance to credit-bearing courses by their eighth semester had failed the course. About 15 percent of students initially placed in Beginning Algebra who advanced to credit-bearing math had failed their initial developmental course, compared with 74 percent of students in the course who did not advance to credit-bearing courses by their eighth semester.

On average, Northern Marianas College students attempted three developmental English courses and two developmental math courses

In English, students who advanced to credit-bearing English attempted 2.6 developmental courses,² and students who did not advance attempted 3.3 developmental courses on

Table 7. Initial placement of Northern Marianas College students in developmental math courses and failure rates, 2008/09–2013/14

Developmental math course	Of students initially placed in a developmental math course (n = 445)		Of students who advanced to credit-bearing math courses within 8 semesters (n = 132)		Of students who did not advance to credit-bearing math courses within 8 semesters (n = 313)	
	Percentage initially placed in this course	Percentage who failed this course	Percentage initially placed in this course	Percentage who failed this course	Percentage initially placed in this course	Percentage who failed this course
Basic Math	42.4	72.4	14.4	^a	54.3	78.8
Pre-algebra	37.8	66.0	39.4	32.7	37.1	81.9
Beginning Algebra	19.8	33.0	46.2	14.8	8.6	74.1

Note: Courses are listed from the lowest level developmental course to the highest.

a. Data were suppressed to protect student confidentiality.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

Table 8. Average number of developmental courses that Northern Marianas College students attempted, by outcome, 2008/09–2013/14

Initial course placement	Average number of developmental courses for all students placed in developmental courses	Average number of developmental courses for students who advanced to credit-bearing courses within 8 semesters	Average number of developmental courses for students who did not advance to credit-bearing courses within 8 semesters
Developmental English	3.1 (n = 522)	2.6 (n = 204)	3.3 (n = 318)
Developmental math	2.0 (n = 445)	2.0 (n = 132)	2.0 (n = 313)

Note: The number of developmental courses refers to the number of times a student attempted a developmental course. For example, 3 courses could mean that a student attempted the same course three times or passed three different courses.

Source: Authors' analysis based on data for 2008/09–2013/14 from Northern Marianas College.

average. In math, students who advanced or did not advance attempted the same number of developmental courses on average (table 8).

Implications of the study findings

Although developmental education at Northern Marianas College is meant to help students catch up and succeed, this study provides evidence that it is not working consistently. A majority of students initially placed in developmental courses never advanced to credit-bearing English and math courses, which means they could not graduate from Northern Marianas College. Compared with their peers initially placed in credit-bearing courses, students initially placed in developmental courses earned fewer credits, had lower cumulative grade point averages, were less likely to remain enrolled at the college, and were much less likely to graduate within eight semesters of initial enrollment.

Stakeholders in the Northern Marianas Islands may wish to consider the following implications of the study findings.

Compared with their peers initially placed in credit-bearing courses, students initially placed in developmental courses earned fewer credits, had lower cumulative grade point averages, were less likely to remain enrolled at the college, and were much less likely to graduate within eight semesters of initial enrollment

Very high percentages of high school graduates are unprepared for college coursework

Most students were unprepared for college coursework. Approximately 80 percent of full-time first-time freshmen seeking an associate degree were initially placed in developmental courses in English and 91 percent in math.

For students who had graduated from public high schools in the Northern Mariana Islands, this means that they had met every high school graduation requirement, including four years of English courses and three years of math courses, but were still judged unready to enroll in credit-bearing English and math courses at college. This finding is consistent with research that has identified misalignment between high school graduation requirements and the skills and knowledge needed to succeed in college as a reason for high enrollment in developmental education (Conley, 2007; Grubb, 2013; Hodara, 2015).

In response, English and math faculty in Northern Mariana Islands high schools and Northern Marianas College might consider how to better ensure that high school course content aligns with the content students will need to succeed in first-year college courses. Having better aligned college readiness/transition courses in high schools might help high school seniors become better prepared for credit-bearing college coursework. Members of the Northern Mariana Islands Alliance for College and Career Readiness might want to study how to align high school graduation requirements, curricula, assessment, pedagogy, advising, and expectations with college requirements.

Having better aligned college readiness/transition courses in high schools might help high school seniors become better prepared for credit-bearing college coursework

Students who advanced from developmental to credit-bearing courses were initially placed in the higher level developmental English and math courses and passed their first developmental courses

Students initially placed in the higher level developmental English and math courses were more likely to complete their developmental sequences and advance to credit-bearing courses than were students placed in the lower level developmental courses and required to enroll in and pass more developmental courses to advance to credit-bearing courses. Students initially placed in developmental courses who advanced to credit-bearing courses attempted about the same number of developmental courses as students who did not advance, but the students who advanced were much less likely to fail their first developmental reading, writing, and math courses.

The failure rates in developmental courses is a concern; if students fail their first developmental course, they have to repeat that course, pass it, and pass any higher level developmental courses in their assigned sequence before they can advance to credit-bearing courses. A combination of tutoring, advising, offering financial assistance, and creating a community of support may help students in developmental courses advance to credit-bearing courses (Scrivener, et al. 2008; Scrivener, et al., 2015; Weissman, et al., 2011). Stakeholders at Northern Marianas College may want to consider ways to redesign developmental courses so that more students pass the courses and advance to credit-bearing courses.

Long and complex sequences of developmental courses may contribute to less positive outcomes

Students may be required to complete as many as seven developmental English courses before advancing to credit-bearing English courses. A student can be placed in one level

of reading and a different level of writing. Additionally, some students enroll in developmental speaking/listening courses even though these courses are not required to advance to credit-bearing courses. While there are only three developmental math courses offered at the college, many students are placed in both developmental English and developmental math courses, which means that some students would have to pass many developmental courses to advance in both subjects. Research indicates that long sequences of developmental reading, writing, and math courses may contribute to student dropout (Edgecombe, 2011). Simplifying and shortening the pathways from initial enrollment in developmental courses to enrollment in credit-bearing courses, combined with improvements in the courses themselves, might help more students initially placed in developmental courses to succeed.

Future research may identify other sources of data that could be used to more accurately place students in credit-bearing and developmental courses

Using more data about students, including more data about their high school experiences, may improve the accuracy of student placement in college courses. A placement process that uses high school data, such as grade point average and test scores, as well as the college placement exams may improve the assessment of students' college readiness. Incorporating multiple measures of college readiness into initial course placement decisions instead of using a single measure such as performance on a college placement exam or a threshold score such as an ACT score can contribute to more precise predictions of outcomes according to some researchers (Maruyama, 2012; Stephan, Davis, Lindsay, & Miller, 2015; Geiser & Santelices, 2007). Currently, the public high school system and Northern Marianas College cannot link high school and college data to allow high school data to be used to help determine initial course placement. Stakeholders may want to consider ways to connect data systems and share high school data about students in order to better predict college readiness and success.

Improvements to the data systems and processes of the Northern Mariana Islands public school system and Northern Marianas College could allow for more routine longitudinal analyses of college readiness and success

The public school system and the college do not share the same unique student identification number for each student. Doing so would allow high school and college data to be linked. The public school system does not have a centralized longitudinal data system that can provide the kinds of data needed for analyses of the type conducted for this study. Northern Marianas College does not track which students initially placed in developmental courses leave the college each semester or how many students placed in developmental courses advance to credit-bearing courses and how long that takes. The college may consider developing new integrated data systems and practices that use pathway data for informing decisions about the effectiveness of programs and policies. Having such data might help stakeholders focus more directly on ways to help more students advance to credit-bearing classes and ultimately to graduate. Being able to regularly generate the kind of data reported here could inform the efforts of stakeholders as they continue to improve the transition from high school through college.

Simplifying and shortening the pathways from initial enrollment in developmental courses to enrollment in credit-bearing courses, combined with improvements in the courses themselves, might help more students initially placed in developmental courses to succeed

Limitations of the study

The study has a few limitations. First, it is descriptive in its design, meaning that causal inferences cannot be made. So although the findings indicate that most students who were placed in developmental courses had less positive academic outcomes than students who start college in credit-bearing courses, the study cannot say whether enrolling in credit-bearing courses instead of developmental courses would have led to better outcomes.

The results of this study may not generalize to other students. The sample for the third research question, which focused on academic outcomes, included only first-time freshmen seeking associate degrees who attended the college full-time in their first semester and enrolled in an English or math course. The sample excluded students enrolling at the college as part-time students in their first semester, students pursuing a bachelor's degree, students returning after an absence, and students seeking a certificate instead of a degree. Also, because the placement exams at Northern Marianas College have changed, the results may not generalize to students who are placed based on the current placement exams.

Finally, data were not available to track whether students who left Northern Marianas College transferred to other colleges off island. All students who left Northern Marianas College without a degree were included in the "not enrolled/not graduated" outcome category. It is possible that some of the students in the study transferred and graduated from other colleges.

Appendix A. Data and methodology

This appendix provides more information about the data and how the analytic samples were developed.

Data sources

To make this study possible, data were brought together from several administrative offices and data systems at Northern Marianas College.

Registration and enrollment data. The Office of Institutional Effectiveness, the Office of Admissions and Records, and the English and Math Departments provided data in separate Excel spreadsheets that included all students who were enrolled at Northern Marianas College from the fall semester of 2008 through the spring semester of 2014. The data included administrative data (for instance, student name, high school graduation date), demographic data (for instance, ethnicity), and achievement data (for instance, courses taken, grades).

Financial aid data. Financial aid data, including an indicator of socioeconomic status (received or did not receive Pell grant funding), are stored by the Office of Financial Aid. The data included Pell grant eligibility, date of birth, and first and last names for all students enrolled in Northern Marianas College in the fall semester of 2008 through the spring semester of 2014.

Merging and cleaning the data

This section documents the steps taken to link and prepare the data for analyses.

Merging data. Preparing the data for analyses required multiple steps. First, student data in the separate Excel files were formatted to support accurate export to SPSS. Second, LinkPlus software was used to merge financial aid data, placement data, and administrative and enrollment data, using students' last name, first name, and date of birth, which were the only common variables across all three databases. LinkPlus is an open-source software program developed by the Centers for Disease Control and Prevention that allows for more accurate linking across disparate data sources. The resulting file was exported to SPSS, and the data were restructured so that each student had only one row of data.

Selecting values when variables differed across semesters. Primary language spoken at home, visa status, and Pell grant status were the most common variables that differed across semesters. The final analyses used information provided in the first semester of enrollment for these three variables. Time-invariant variables, like race/ethnicity, also sometimes varied across semesters. A student might have been classified as Asian in five of the six semesters at Northern Marianas College and White in another semester. The first race/ethnicity that a student identified was used for the analyses.

Reporting missing data. Some demographic data were still missing after the three separate datasets were linked and merged. For example, 18 percent of students had missing race/ethnicity data in the English course sample; 12.9 percent had missing data in the math course sample. No adjustments or substitutions were made for missing data, and all missing data are described throughout the report.

Identifying the analytic samples

To be included in the analytic sample, students had to be first-time freshmen seeking an associate degree who attended college full-time in their first semester. They also had to enroll in at least one English or math course within eight semesters after initial enrollment. Most students were initially placed in an English or math course within the first two semesters of enrolling at Northern Marianas College: 93.5 percent of the sample were placed in a math course within their first two semesters, and all students were placed in an English course within the first two semesters. To allow for as large a sample as possible, the study included students who were placed in an English or math course (credit-bearing or developmental) within any of their later semesters as well.

Identifying first-time freshmen. To determine whether a student was a first-time freshman, the study team used information on several variables: college attended, class level, semester grade point average, and cumulative grade point average. The college attended variable indicates whether a student previously attended college. Students can be classified as an ongoing student from the previous semester, a readmitted student, a transfer student, or a first-time freshman. However, Northern Marianas College clarified that some students who had taken courses in prior semesters and acquired college credits could have been misclassified as first-time freshmen.

The class-level variable identifies students as freshmen, sophomores, juniors, or seniors. A first-time student should always be classified as a freshman. However, in this variable, as in the college attended variable, some students could be misclassified if they had not earned enough credits in prior semesters to be classified as sophomores. Though they had attended the college in prior semesters, they might have appeared to be first-time students.

To avoid misclassifying students' first-time freshman status, the study team compared the college-attended variable with the class-level variable. A student's grade point average was used as a secondary check for evidence that students had taken courses in prior semesters at the college. The study team compared semester grade point average with cumulative grade point average to determine whether a student had taken courses in prior semesters: if there was a difference between the two averages, it was likely that the student had taken courses in a prior semester.³ Using these four variables, the study team determined first-time freshman status. Finally, the study team took one additional step by reviewing data from prior semesters to determine whether students initially classified as first-time students had placed in any courses in a prior semester. Though it was not possible to review prior enrollment in courses for students who entered in fall 2008, the study team was able to review prior semester course enrollment for students entering in later semesters: this step revealed three students who had been mistakenly classified as first-time freshmen.

Classifying full-time and associate degree-seeking status. Students were classified as full-time students if they enrolled in classes bearing a total of 12 or more credits in their first semester at Northern Marianas College. Students indicated whether they were seeking an associate degree in their application materials.

Selecting separate English and math samples. A total of 664 students were included in the English and math samples for this study. Although 478 students were in both the English and math samples, 174 students were in the English sample but not the math sample and 11 students were in the math sample but not the English sample.

Separate English and math samples were necessary for several reasons. Because some students were initially placed in either English or math but not in both, having separate samples allowed more students to be included in the study. Additionally, members of the Northern Mariana Islands Alliance for College and Career Readiness, who were interested in understanding how well developmental English and math courses support student success at the college, preferred to study outcomes in the two subject areas separately. Finally, it is unclear in the literature whether enrollment in developmental rather than credit-bearing courses is associated with different academic outcomes in college for English and math courses.

Appendix B. Information about the samples

The analytic sample for English represents 87.6 percent of all full-time first-time freshmen seeking associate degrees at Northern Marianas College; the sample for math represents 65.7 percent of all full-time first-time freshmen seeking associate degrees (see table B1).

Table B1. Number of first-time freshmen seeking an associate degree at Northern Marianas College, fall 2008–fall 2010

Sample	Number
First-time freshmen seeking an associate degree	895
Full-time first-time freshmen seeking an associate degree	744
Full-time first-time freshmen seeking an associate degree who were placed in at least one English course within 8 semesters	652
Full-time first-time freshmen seeking an associate degree who were placed in at least one math course within 8 semesters	489

Source: Authors' analysis based on data for 2008–14 from Northern Marianas College.

Notes

1. Cumulative credits and grade point averages are reported only for students enrolled in a given semester. For example, if a student was enrolled in semesters 2 and 4, their cumulative credits and grade point average were not reported in semester 3. Cumulative grade point average does not include developmental courses or other courses graded on a pass/fail basis; otherwise, all credit-bearing courses are included.
2. Attempting multiple developmental courses means that a student could take the same course multiple times or take different courses each time.
3. Students who received a 3 or higher on an Advanced Placement exam were given credit with a grade of P for the corresponding course at Northern Marianas College, but the grade P does not affect students' college grade point average.

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