

# Key Findings from 5-Year MJC Study of Math 10/20/70/89/90 Course Success and Retention Rates

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## Overview

In November 2016 a major research study of pre-college transfer-level Mathematics course activity at MJC was conducted with the objective of measuring patterns in student success and student retention at the course level, for the semesters Fall 2011 through Spring 2016. The emphasis in this study is on courses **Math 10**, **Math 20**, **Math 70**, **Math 89**, and **Math 90**. Data measures include:

- (1) **Course Enrollment Trends and Sections Counts**—Term by Term and 5-year Average
- (2) **Course Success Rates Trends**—Term by Term and 5-year Average
- (3) **Course Success Rates by Race/Ethnicity**—Term by Term and 5-year Average
- (4) **Course Retention Rates**—Term by Term and 5-year Average
- (5) **Course Success Rates Gaps**—Term by Term and 5-year Average

## Notable General Findings

- **Enrollment:** The course with highest average enrollment at census over five years is **Math 70** (Elementary Algebra), with nearly **900 students per semester**. In Spring 2016, **Math 70** enrolled nearly **1,000 students** in **25 course sections**. **Math 10** (Introduction to Math) had the lowest average at **135 students per semester**.
- **Course Success:** **Math 70** had the lowest overall course success rate averaged over 5 years, at **55.2%**, followed by **Math 90**, at **56.1%**. **Math 20** had the highest rate at **62.5%**.
- **Course Success Rates by Race/Ethnicity:** Average 5-year Success Rate gaps (i.e. highest vs. lowest success rate by course) were measured among **African-American**, **Asian**, **Hispanic**, and **White** students. The gap (averaged over 5 years) was greatest for **Math 20**, at **25.6%** (**African-American** students averaged **39.9%** and **White** students averaged **65.5%**) followed **Math 70**, at **17.7%** (**African-Americans** averaged **39.3%** and **Whites** averaged **57.0%**)
- **Course Retention Rates:** Average 5-year Retention Rate for **Math 90** was lowest, at **78.1%** for Fall 2011 through Spring 2016, followed by **Math 10**, at **80.1%**.
- **Course Success Rates Gaps:** The course with widest gap between high success rate section and low success rate section, averaged over 5 years, is **Math 70**, with a gap of **65.3%** followed by **Math 90**, with a gap of **60.2%**. **Math 10** and **Math 20** each had 5-year average success rate gaps of **32.5%**.

## Additional Findings

- **Graduation Rates by Initial Math Placement:** In a 6-year graduation rate study of students who entered MJC in Fall 2010, graduation rates (degree or certificate) as of November 2016 were:
  - **All students combined: 12.3%**
  - **Students assessed at Math 10: 2.9%**
  - **Students assessed at Math 20: 8.2%**
  - **Students assessed at Math 70: 14.4%**
  - **Students assessed at Math 90: 26.7%**
  - **Students assessed at College-level (101 or above): 27.3%**

### Additional Findings (cont).

- **No-Pass and Multiple Course Enrollment Trends:** Based on seven years of enrollment data trends at MJC, the following no-pass and retake counts were measured:
  - **Math 10:** 34% of students who enroll never pass; 59% pass on the first try; 7% on second try
  - **Math 20:** 25% of students never pass; 64% pass on the first try; 11% on second try
  - **Math 70:** 27% of students never pass; 56% pass on the first try; 17% on second or third try
  - **Math 90:** 25% of students never pass; 60% pass on the first try; 15% on second try
- **Waitlist Patterns:** Course waitlist data for 2011-12 through 2015-16 was contrasted with overall enrollment data per course to calculate a **Waitlist to Enrollment Ratio**. **Math 10** had the highest Waitlist to Enrollment Ratio averaged over the 5 years at **1.55** (average waitlist = 210 students) followed by **Math 70**, with a Ratio of **0.97** (equaling 860 students per semester on waitlists).
- **Basic Skills Initiative Plan 2015-16 Long-term Goals Progress:**
  - Long-term Goal #3: **The successful 2-year progression rate from beginning algebra to intermediate algebra will increase by 3% by 2016-17 over the year 2011-13 rate:** Preliminary progress in meeting this goal was measured for the Fall 2013 cohort year, and the 3% improvement target appears to have been reached. Further data for Fall 2014 and Fall 2015 cohorts will be measured to confirm this pattern has continued. Fall 2015 cohort data will be available in summer 2017.
  - Long-term Goal #4: **The percentage of students who assess into Basic Skills level Math who ultimately complete college-level Math within 2 years will increase by 3% in 2015-16 and 2016-17, and 4% in 2018-19:** Preliminary measurement of the Fall 2013 and Fall 2014 cohorts academic progress in Math suggests that the 3% improvement goal appears to have been reached and even exceeded when compared to the Fall 2011 baseline year and continued to improve for the Fall 2014 cohort. Results for the 2015-16 cohort will be available in summer 2017.
- **Math Assessment of Fall 2016 Entering Students:** Among the MJC students who are first-time enrolled in Fall 2016 (approximately 3000 students):
  - The largest proportion were assessed as needing to begin their Math studies at the **Math 10** or **Math 20** level (**36%**), followed by **Math 70** (**31%**) and **Math 89** or **90** (**20%**). Only **4%** were initially assessed at the College-Math level.
  - Among **Hispanic** and **African-American** students entering in Fall 2016, the proportion requiring **Math 10** or **20** is even higher: **53%** of **African-American** students and **39%** of **Hispanic** students.
  - Based on students initially enrolling at MJC in Fall 2016, the schools with highest proportions of **Math 10/20** students included **Grace Davis High** (54%), **Peter Johansen High** (43%), **Orestimba High** (42%), **Thomas Downey High** (40%), and **Patterson High** (38%).
  - (MJC Placement Data: Math and English Students Enrolling Fall 2016 (First-time) is available at <http://mjc.edu/general/research/mjcplacementdatamathandenglishfall2016.pdf>).