

**Golden West College**  
**INSTRUCTIONAL PROGRAM REVIEW**  
**Spring 2016**

**Program Name: Developmental Math**  
**Division Name: Learning Resource Center**

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## INSTRUCTIONAL PROGRAM REVIEW PROMPT

### PROGRAM INFORMATION:

Assume the reader does not know anything about your program. Briefly describe your program and how your program supports one or more of [Golden West College's mission and goals](#). **This description will likely be used on your department's website.**

*The Developmental/Remedial Program: The Developmental Program is designed for students who desire to improve their mathematics skills in Arithmetic, Prealgebra, Algebra, and Geometry.*

### College's mission (check all that apply)

- Basic Skills
- Career Technical Education
- Transfer
- Offer Degrees/Certificates

**Program Contributions:** Describe how your department contributes to the campus. Consider areas such as diversity, campus climate, student success, campus processes, student support, and other college goals below.

Our department, Developmental Math Program at the Learning Resource Center, contributes to the GWC campus in diversity, campus climate, student success, campus processes, student support, and other college goals. Our program appreciates the diversity of the student population at GWC, which stimulates awareness and improves mutual understanding and respect. It is important to respond to the needs of a changing and increasingly diverse population, along with Equity, which re-iterates that some students need more to get there. The diverse academic, socioeconomic, cultural, disability, and ethnic backgrounds of GWC students require more resources to catch up, succeed, and eventually, close the achievement gap. For us, it is important to create an encouraging and comfortable climate that the students feel free to ask questions. Moreover, the communication between faculty and students is crucial for the students' Success in college. We provide a number of methods to encourage communication between our faculty and the GWC students inside the classrooms, during office hours, by offering review sessions and workshops, and using technology such as the GWC website, telephone numbers, the Blackboard, and ALEKS email Correspondence. Additional student support programs offered through our program in collaboration of the GWC campus are the PASS (Peer-Assisted Study Sessions) program and sessions, DSPS (Disabled Students Programs and Services) confidential accommodations, and the tutoring center at the LRC.

We can best summarize our professional goals and desires as follows: sensitivity and respect for students as individuals, creation of a classroom atmosphere conducive to students' questions and comments, understanding of equity and students' difficulties with the subject matter, demonstration of knowledge of the subject, preparation for each class meeting, and effectiveness in explaining and interpreting new material. To maintain appropriate standards of professional conduct and ethics, our program embraces the overall mission of the Coast Community College District, with a clear, focused commitment to supporting teaching and academic excellence, student learning and success through the work of mathematics and education.

### College goals(check all that apply):

- Institutional Mission & Effectiveness
- Instructional Programs
- Student Support Services

- Library and Learning Support Services
- Student Engagement
- Student Equity
- Human Resources
- Facilities & Campus Environment
- Technology
- Fiscal Resources
- Planning Processes
- District Collaboration
- Community Relations
- Business, Industry, Governmental Partnerships

**External Requirements:** Indicate any requirements that are imposed on your program by the state, federal regulations, or other external accrediting bodies (if applicable).

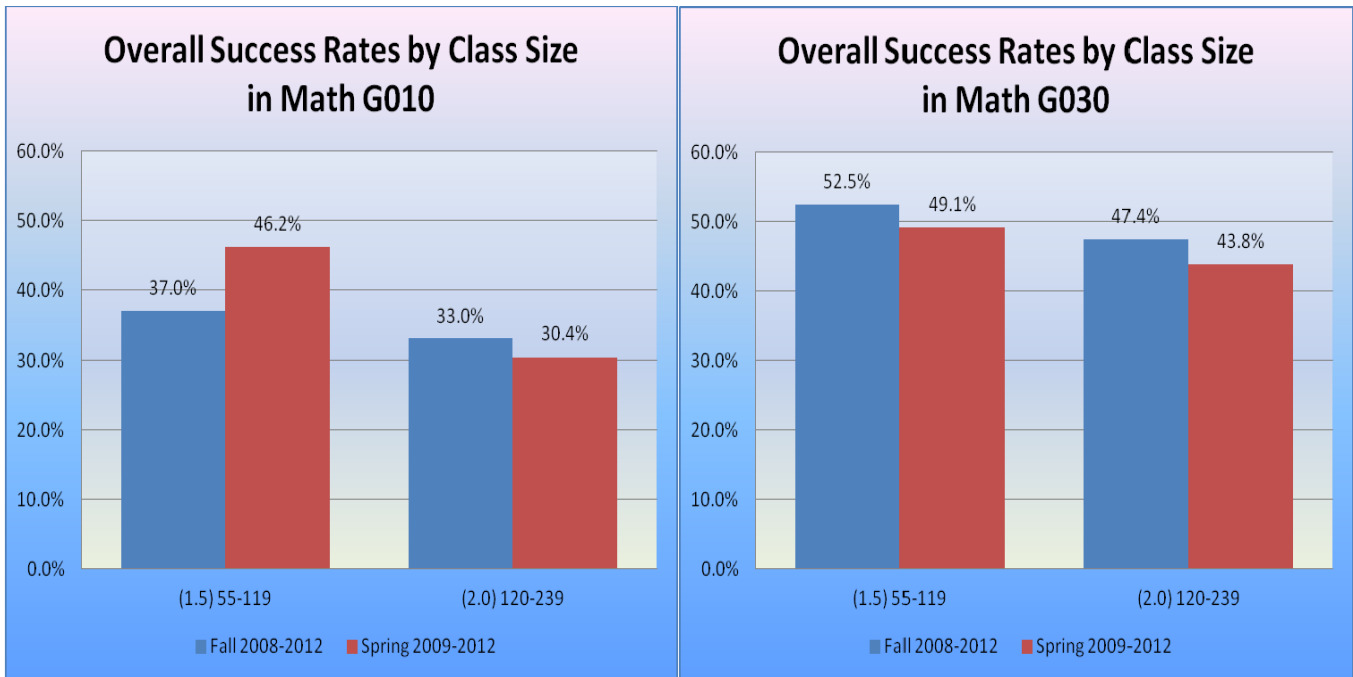
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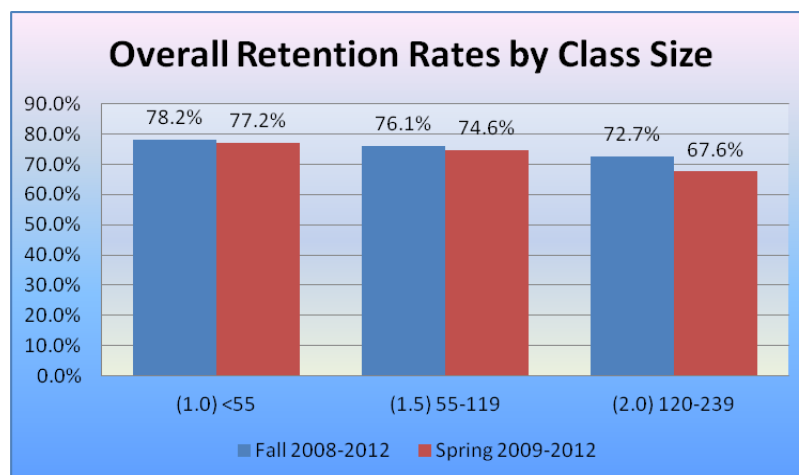
N/A

**REVIEW OF LAST CYCLE PROGRAM REVIEW**

Provide assessment of your previous program review initiatives. Summarize any accomplishments that your program achieved. (2 pg limit)

This review of the last cycle of program review will be more condensed due to the organizational changes of developmental math oversight and Spring 2015 being the first semester developmental math was part of the Learning Resource Center (not the math department). A close examination of the data for Math G010 and Math G030 indicates that as class size increases, the overall student success rate in each course declines in each semester. Below you can see 2008-2012 success rates Math G010, G030, and overall retention rates by class size.





From the start of Spring 2015, the developmental math team within the LRC piloted items with an expansion of these practices across all developmental courses at GWC. The following items were piloted:

- Reduction in class size from 90 to 64 students
- Hiring of two full time developmental math faculty for Fall 2015
- Hiring a full time instructional expert to pilot these practices in their classroom
- Implementation of PASS/supplemental instruction. The results of the PASS/supplemental instruction in Fall 2015 are outlined below in the strengths section
- Research and piloting of a new web-based program - ALEKS
- Implementation of an 8 week remediation program Jumpstart to support students remediation in developmental math and the ability to retake the math placement test and jump one mathematics level. Offering office hours, review sessions, and workshops by the full-time faculty. Offering office hours (paid) by part-time faculty
- Conducting (paid) professional development training days for the faculty for ALEKS training, teaching strategies, etc.
- Collaborating with the math faculty by attending monthly math department meetings
- Collaborating with the math department in putting together the SLO's for different courses
- Participating in campus activities with other departments such as the Science Showtime, the Stem Center, etc

## FOR CTE PROGRAMS ONLY

**Labor Market Demand:** How is your program meeting labor market demands? Should you expand, contract or stay the same? Is there competition from other programs in the area? If yes, from what institution? How is the competition affecting your program? Are there any other external factors about which you are concerned?

N/A

**VTEA Core Indicators:** When reviewing the state VTEA core indicators, what are the trends that contribute to or impede student success? Why is this occurring?

N/A

**Advisory Council Input:** What type of inputs have your program received from your industry advisory council in the last three years?

N/A

## SWOT ANALYSIS

### Strengths:

- What does your program do well?
- What do you believe your students, potential employers, or transfer institutions see as your program's strengths?

The Developmental Mathematics Department offers morning, afternoon, evening and weekend classes for remedial math courses, Math 010 (Elementary Algebra) and Math 030 (Intermediate Algebra) to accommodate a variety of students. Our courses are taught with the appropriate rigor and prepare the students to take the transferrable math courses. The Department does an excellent job of managing large class sizes (64 students). We utilize an on-line course management system, ALEKS (Assessment and Learning in Knowledge Spaces), which is a diagnostic program and it manages the students' progress based on students' knowledge. This system provides students with a variety of resources to help the students master the concepts. Using ALEKS has enabled us to have a variation of assessment and we have noticed that students are more likely to practice their math skills via this system, and overall we are happy with this program and its outcomes. Our department offers short-term winter and Summer Jumpstart Workshops to help the students improve their math skills and get a better score on their Math Placement Tests. As a result of Winter 2016 Jumpstart Workshop, 73.6% of the students who attended the workshop were able to jump to transferrable math courses after re-taking the math placement exam. Through Title III grant, remedial math courses are privileged to have PASS (Peer-Assisted Study Sessions) Leaders for the majority of Math 010 and 030 courses, and the data shows that the classes who have PASS Leaders have a higher success rate than the classes without PASS Leaders. We are proud that the students' attitudes towards mathematics have become more optimistic and our students are more prepared to take transferrable math courses. As a result, some students have decided to choose STEM majors. We take pride in having caring and professional faculty who are dedicating their time to get together for monthly Professional Developmental meetings. During these meetings, the faculty members share their successful methodologies or their concerns and learn from each other. After the Spring 2015 PASS pilot, it was expanded to more sections of developmental math in Fall 2015. Below are the findings of Fall 2015 PASS program in developmental math.

### **Math 010 – 6 sections**

- Of the 386 students that were enrolled in Math 010 with PASS attached to their class, 153 students (40%) attended at least one study session.
- 58% of students that attended PASS received a passing grade (A, B, or C), compared to 48% of students that did not attend PASS.
- 41% of students that attended PASS received a D or F or withdrew from the class compared to 52% of students that did not attend PASS.
- The mean final grade of PASS participants was 1.88, while the mean final grade of Non-PASS participants was 1.78, with a total difference of 0.10.

### **Math 030 – 3 sections**

- Of the 186 students that were enrolled in Math 030 with PASS attached to their class, 54 students (29%) attended at least one study session.
- 76% of students that attended PASS received a passing grade (A, B, or C), compared to 64% of students that did not attend PASS.
- 24% of students that attended PASS received a D or F or withdrew from the class compared to 35% of students that did not attend PASS.
- The mean final grade of PASS participants was 2.66, while the mean final grade of Non-PASS participants was 2.31, with a total difference of 0.35.

### Weaknesses:

- In what areas does your program need to improve?
- What are your program's immediate needs?
- What limitations or barriers is your program experiencing?

Our Developmental Math Department is faced with the challenge of ensuring that each of the students who are in large group classes is consistently offered the highest quality education. Due to the small size of our full-time faculty team, the quantity of LCF courses offered exceeds the number we are able to staff with only two newly hired full-time tenure-track faculty members and one full-time faculty/Title III Mathematics Coordinator. Therefore, we have relied on newly hired skilled adjunct faculty to teach several of remedial math courses. This has made the hiring, training, communication with, monitoring and evaluating the new faculty members necessary. We believe that increasing the student's success rate is an ongoing collaborative effort and it highly depends on the quality instruction. Our department will analyze the data for Math 010 and 030 courses to identify and find solutions to problems in regards to the consistency of instruction and compliance with the departmental standards and their effect on student success. One of the barriers to implement the collaborative instruction in our classes is the classrooms that are available for our developmental math courses. Most of our classrooms are lecture halls with fixed seats in fixed rows and the students don't have the freedom and opportunity to work together in groups as much as the instructors want them to. The instructors in our department try to their best and encourage the group activities considering the classroom setting. In addition to that, having document cameras, mathematical manipulators and electronic tablets in our classrooms would provide the instructors with diverse teaching tools to attract the students of different learning styles. It's very imperative to offer workshops to math 010 and 030 students so that they feel empowered to overcome their math anxiety and learn the needed tools to thrive in their math courses. Finally, there is a major challenge with the developmental math adjunct faculty members are not compensated for office hours or additional time spent outside of lecture and lab supporting students.

### Opportunities

- What opportunities exist for your program?
- What trends are happening in the field or subject area that may allow your program to expand?
- What external funding opportunities are available for your program?
- What potential industry, high school, college/university or other external partnerships can be established or expanded to benefit your program?

Basic Skills Initiative, Title III and, Equity and also STEM are the grants and external funding that are available for our program. The Dual enrollment is one of the trends happening in remedial math courses. Through our outreach program, we extend our services to our neighbor high school students, and the high school students are

privileged to attend our “non-credit preparation workshops” provided by GWC faculty members either at the high schools or at GWC (Summer Jumpstart) before the students take the Mathematics Placement Test. The non-credit workshops offered by our division also provide the students the opportunity to transit to transferrable math courses upon submitting the evidence of their successful completion in these remedial workshops. Bill Gates Foundation provides educational support for STEM field and we need to learn how to take advantage of it. As we continue to develop ideas for Golden West College STEM initiatives and grants, the Dean of CTE division introduced us to the STEM Core Network of the Growth Sector Group. We discussed the Math preparation for STEM pathways to 4-year colleges. The program that we are interested in is “Bridge to Engineering”. Via this program, the math faculty members who happen to be engineers design the math curriculum in order to provide valuable contextualization to the engineering field. Students also receive math-intensive training, course-specific individual math tutoring, individual counseling and hands-on engineering workshops to help the students be successful in the class. Students take cohort courses for one year and they can compete for paid internships in the industry partners. By taking 3 math classes in one year, the selected participants will be able to complete the pathway from algebra to calculus in two semesters. Also, there may be opportunities with universities for the pre-engineering effort supported by the STEM grant. The last opportunity is to increase the collaboration, dialogue, and planning with the transfer level math department. As the developmental math team gets settled with implementing these new changes, there is great opportunity to better discuss articulation, vertical alignment, and best practice sharing.

#### Threats/Challenges

- What challenges exist for your program?
- What budgetary constraints is your program facing?
- What kind of competitive disadvantages is your program facing?
- Are there upcoming changes to state and federal regulations that will impact your program? If so, please explain.

The challenges in developmental math relate to the class size, staffing constraints, and lack of ongoing professional development specifically targeting the diverse needs of GWC students in developmental math courses. Due to the past budget constraints and the math department PVR, the administration communicated that a structural relocation of the developmental math courses and oversight at GWC was to occur in Fall 2015. This change was also a political challenge resulting in a shift of decision rights and creation of a revamped developmental math sequence. This would prove to be a large challenge in when carrying out procedures such as getting a new course outline approved by the curriculum committee and accomplishing tasks where overlap existed. With the increase of equity funding and alignment of actions to resources, the challenge of the structural shift has the potential to be an asset. Finally, the need for a developmental math researcher to assist the team with formative data analysis could be a challenge, but also an opportunity. If or when a developmental math researcher is hired, it is critical they work closely and in collaboration with the GWC research team to ensure data is streamlined and accurately reported in the same fashion as GWC data.

## CURRICULUM REVIEW

**Course Outlines of Record:** It is expected that all Course Outlines of Record (CORs) will be reviewed every three years. Starting in summer 2016, courses featured in the College Catalog will directly link to the courses' official CORs. It is crucial for all CORs to be reviewed to ensure their accuracy. Upon reviewing the courses in your disciplines through [CurricUNET](#), please provide a 3-year timeline of when all of the CORs under your disciplines will be reviewed. Please follow the table format below.

CORs needing review/ revision	Timeline to complete review	Person responsible
Mathematics G010/G010L	October 2017	Erin Craig, Ed.D.
Mathematics G030/G030L	October 2017	Erin Craig, Ed.D.

**C-ID Designation:** In 2006, the Academic Senate for California Community Colleges developed the [Course Identification Numbering System \(C-ID\)](#). This system improves curricular consistency for courses throughout the state and provides many articulation/ transfer benefits to our students. Many courses at Golden West College have been approved for C-ID alignment. Please review the list provided by Office of Research, Planning, and Institutional Effectiveness and discuss the following:

1. Does your department plan to submit more courses for C-ID designation? If yes, which ones? (These courses may or may not be part of an ADT. See C-ID.net for more information regarding courses, descriptors, and ADTs.)

The developmental math team, in collaboration with the transfer level math team do not plan on submitting more developmental math courses for C-ID designation at this time.

**Dual-listed courses:** Review the list of dual listed courses in your area and complete the following chart.

Dual Listed Courses	Date of Faculty Discussion and Review	Recommendations
N/A	N/A	N/A

**Curriculum Offering:** Review the list of active courses in your programs that were offered and not offered in the last three years. Based on your review, what courses could you add, suspend, or retire to improve your overall program to ensure student success? (Data provided by ORPIE)

Course Name	Recommended Action (add/suspend/retire)
Math 005	Provide non-credit workshops for students in need of intervention
Math 008	Provide non-credit workshops for students in need of intervention



## **PROGRAM DATA AND ANALYSIS (Items in black font are provided by ORPIE)**

### **SLO Assessments**

List of courses with ongoing assessment

List of courses offered in the last 3 years that have not been assessed

After examining the SLO data for Math 10 and Math 30, the data shows that all Math 10 SLOs have been assessed by in Math 30, four of the five SLOs have been assessed in the last three years. The reason for this is unknown. Instructors indicated the location of particular SLOs on the final exam, for example placing the SLO problem on the last page, could have a negative impact on the student results. An area for consideration is to designate lab time for procedural math practice or collaborative learning experiences rather than primarily assessing students during this time. Finally, a common response that was across the majority of SLO comments was that students were not able to find success in the procedure of the problem. Procedural knowledge a major component of Math 10 and Math 30 and a focused and ongoing professional development series on the theory of learning and best practice implementation could increase instructors' ability to meet the diverse needs of students and increase all knowledge levels, success in math courses, and college.

### **Fall 2015 SLO Results**

#### **Math 10**

**230/374 = 61.4% of GWC students completed the SLO questions successfully in Math G010 in Fall 2015.**

The following were helpful in supporting the students who succeeded on this SLO (earned 70% or higher):

1. Practicing in ALEKS program consistently. The topics are reviewed by referring to the book for the targeted topics, multiple examples and practice problems are listed for each topic, instructional videos are available for many topics, etc.
2. Attending the class regularly.
3. Having Weekly quizzes.
4. Availability of multiple resources such as the PASS leader, tutoring at the LRC, the instructor's office hours, and review sessions.
5. The students who scored well also had high homework scores and log in times in ALEKS, as well as higher exam scores throughout the semester.
6. Students who found success on this SLO had about 20% more of their ALEKS pie topics completed at the end of the course.
7. Instructor's Emphasizing on explaining the differences of the terminologies. (solve verses factor)
8. Using the flow chart to introduce the factoring in class.
9. Attending PASS sessions, attending the lab each week, students fully understanding the different methods to factor, and the importance of factoring out the GCF at some point in the problem before solving.
10. Students who performed on this SLO have persistence to ensure when they are factoring, they are factoring correctly.

These factors may have influenced the students who scored below 70% on this SLO:

1. Not attending the class regularly due to health, financial, and family issues.
2. Not reading the question thoroughly.
3. Not distinguishing the difference between factoring, simplifying, and solving.
4. Not distinguishing the difference between expressions and equations.

5. Not using the available resources such as PASS, LRC tutoring, DSPS and the instructor's help.
6. Not completing the assignments on ALEKS program, not working on ALEKS consistently.
7. Of the 30 students who did not receive 70% on the SLO, 15 of them correctly factored into the form  $(x-8)(x+1)$ . However, they did not continue in the problem. The connection between solving an equation and requiring solution values for  $x$  seems to have been missing.
8. Most of them work full time so they don't attend class regularly and don't spend enough time on their assignments.
9. Those students who could not complete this SLO with at least 70% , struggled the most with understanding how to factor a quadratic.
10. Those students, who did not perform on the SLO, attended PASS less as compared to students who attended PASS at least twice per month.
11. Some students didn't understand the meaning of "Solve."
12. Some students didn't recognize that the equation was a quadratic equation.

### **Math 30**

**347/635 = 55% of GWC students completed the SLO questions successfully in Math G030 in Fall 2015.**

The Math G030 instructors believed factors influencing the success rates were:

1. Students' attendance,
2. Staying up to date on ALEKS' pathway,
3. Understanding the concepts of rational expressions and factoring,
4. Participation in the class,
5. Students' determination,
6. Reviewing course content throughout the semester,
7. Attending the instructors or the PASS Leaders' study sessions regularly.

Looking at all assessments of your programs and courses, describe proposed plans for improvement

After examining all assessments and data available for our developmental math pilots, we will work to improve: student success rates (emphasized in math 30), student participation in PASS, and working with students in Jumpstart to best prepare them with the skills required to be successful in transfer level math courses.

### **Student Demographics (Headcount by Discipline)**

- Gender
- Age
- Ethnicity
- Disability
- Economic Disadvantage
- Veteran
- Foster Youth

Comparison to GWC

Questions:

- How does your student population compare to GWC's general student population?

The developmental math student population compared to the GWC student population can be seen outlined in the chart below. Developmental math courses have a higher rate of Hispanic/Latino students, similar white population, and approximately 50% less Asian students as compared with the aggregate GWC population. The

demographic data directly aligns to the Hispanic students being the most negatively disproportioned impacted race in developmental math course success.

Race	Dev Math	GWC
<b>Am Indian/Alaska</b>	.5%	.3%
<b>Asian</b>	15.5%	29.2%
<b>Black or African American</b>	2.6%	2.3%
<b>Hispanic</b>	44.1%	30.3%
<b>Nat. Hawaiian/Pac Islander</b>	.6%	.4%
<b>Two or more</b>	4.7%	4.4%
<b>Unknown</b>	1.5%	1.7%
<b>White</b>	30.5%	31.3%

- Based on the trend that you're seeing, what type of adjustments would you make to your program?

Based on the race enrollment in developmental math and the most disproportionately impacted students, the developmental math courses should be modified and implemented to meet the diverse needs of the students at GWC. The adjustments to be made in the developmental math courses at GWC should include student-centered curriculum, learning tools, collaborative experiences, all resulting in student agency and increased learning. Moving into equity mindedness supports differentiation, scaffolding, and ongoing student-centered professional development.

**Program Enrollment (Filter by: Discipline, Session Type, Large Lecture Factor)**

Enrollment at Census  
 Sections Offered (by CRN)  
 Fill Rate at Census  
 FTES/FTEF

Questions:

Consider sections offered, session type, and your current PT faculty pool as part of your analysis.

- What factors have contributed to your trends in enrollment, sections offered, and fill rate?  
 In 2009-10, the average fill rate was 99.8 and 92. for Fall and Spring respectively. In 2014-15, the average fill rate increased to 102.5 and 95.5 for Fall and Spring respectively. A major change in Basic Skills Math enrollment has been the class size reduction from 180 students, to 90 students, and most recently to sections of 64 students with additional supports. Since the class sizes have been reduced, the average fill rates have decreased minimally.

Based on your review of the data, should you increase, decrease, or keep the same number of sections offered?

64 students in each developmental math course are quite large and could be improved by continuing to decrease class size. One potential idea is to increase the number of sections for math 10 which would allow for more students to instructor time and differentiation. This would increase the number of sections for math 10 but could potential increase retention and success.

- How does your department average FTES/FTEF compare to college-wide average FTES/FTEF?

The developmental math FTES/FTEF most recently at 57.6 as compared to the college's 35.8. Since 2009, GWC's FTES/FTEF has a high of 42.6 in 2011-12, and a most recent low of 35.8 in 2014-15. The Basic Skills Math FTES/FTEF was highest in 2012-13 at 99.2 and also lowest in 2014-15 at 57.6.

## Course Retention and Success

Overall

By Ethnicity, Age, Gender

By Large Lecture

By Session Type (Day, Evening, Hybrid, Online)

Questions:

- Looking at success rates for different demographic groups (age, gender, ethnicity), which groups are experiencing disproportionate impact (success rates for those groups are lower than the average success rates) in student success?

When examining success rates by race in 2014-15, Black students with a 31% success rate and Hispanic students with a 42.4% success rate are experiencing disproportionate impact. The success rates for Hispanic students have increased from 36.6% in 2009-10 to 42.4% in 2014-15. Both success rates are approximately 5% lower than the total average pass rates for developmental math, resulting in not closing the success gap in Math 10 and Math 30 over the past five years. When examining success rates by gender, female success rates have increased by over 20% in the last five years where as male success rates have increased by 6% in the past five years. For veterans, the success rate in developmental math courses was 70.5% in 2009-10 and varied between 45.8% in 2011-12 to 64.6% in 2014-15. This variance is due to the small number of veterans that are in developmental math courses. Foster youth in developmental math at GWC is also a small N with success rates of 36.1% in 2010-11 increasing to 44.1% in 2014-15.

- If there are student groups experiencing disproportionate impact, what's your department's plan to address the disproportionate impact?

The math department under the direction of the administration transitioned the developmental math oversight and future planning to Dr. Erin Craig. Dr. Craig was hired to transition developmental math from the transfer level math into the Learning Resources Center with the intent to redesign the delivery of the course through the lecture and lab. In Spring 2015, Dr. Craig piloted blended learning, classroom flipping, and having a PASS leader in her class. The results from the Spring 2015 pilot supported and guided the decisions made in the developmental math course revamp. Dr. Craig also is a member of the GWC equity team and has attended multiple seminars and sessions with the USC's Center for Urban Education. This training and support with equity has allowed Dr. Craig to transfer this information and practices to the developmental team and students, who are highly included in the subgroups that are disproportionately, impacted the most, Hispanic students.

## Degrees and Certificates

Number of degrees and certificates conferred in the last 6 years

Completers are defined

Questions:

- Based on the number of degrees/certificates you are awarding, discuss any differences between your expectations and actual numbers.

N/A

- Please answer this question for programs that have fewer than 10 completers in the last 6 years: What strategies will you implement within your department to increase/attract completers or majors?

N/A

## Faculty Staffing

Percentage of courses taught by full-time versus part-time faculty

- In recent years, what successes/challenges have you had in hiring and retaining qualified part-time faculty?

The largest challenge with hiring and retaining full time faculty is the lack of full time positions available at GWC. High quality instructors get job offers from other colleges and GWC has continued to lose faculty as a result of obtaining full time positions elsewhere. Successful hiring has occurred when candidates are hired who have training in pedagogy and instruction. Additionally, the hiring of a full time developmental math instructor in Spring 2015 allowed for an analysis of developmental math success and gaps to plan for the revamp of developmental math at GWC.

- Based on your department discussion, what do you see as your ideal number of full-time faculty to promote student success?

For developmental math, the ideal number of full time faculty would be between 8-10 instructors that taught 3-4 courses depending on the class size. An increase to full time faculty can increase buy in, time onsite, and engagement in the development and refinement of a high quality developmental math team.

## PROGRAM PLANNING

Based on your analysis of previous program review and current data:

- What does your program want to accomplish in the next three years?

### Year One

- Increase retention and pass rates in Math 10 and 30 by at least 10%
- Provide monthly professional development focused on student needs, differentiation, and instructional practice
- Implement and refine a developmental math bridge course called Jumpstart to support students in remediation and retaking of the placement test. The goal is at least 80% of students who finish the program and retake the placement test, will place out of developmental math courses.
- Implement PASS/Supplemental instruction in at least 50% of developmental math courses

### Year Two

- Increase retention and pass rates by 5% as compared to the previous year
- Refine and develop monthly professional development to meet the diverse needs of the math instructors
- Refine Jumpstart through career pathways to address two needs: placing out of developmental math coursework and increasing access to a career pathway of interest and/or talent.
- Implement PASS/Supplemental instruction in at least 85% of developmental math courses

### Year Three

- Have higher success rates than the GWC average in all subgroups
- Continue to refine and develop monthly professional development to meet the diverse needs of the math instructors
- Support other developmental math teams across the region in redesign, Jumpstart, and new innovative practices at GWC.
- Refine PASS/Supplemental Instruction

What areas does your program plan to improve?

- Ongoing professional development
- Formative and summative data driven instruction implemented by all instructors

- Differentiation to meet the diverse needs of learners

-

What specific actions will you take to improve upon those areas?

- Hiring of a developmental math coordinator
- Two day sessions of professional development before each semester starting Fall 2015
- Monthly professional development focused on pedagogy, data driven instruction, and meeting the diverse needs of students
- Pilot of innovative practices: PASS leaders, Jumpstart, Classroom Flipping, Mastery Learning
- Full implementation of innovative practices: PASS leaders, Jumpstart, Classroom Flipping, Mastery Learning

How will you assess whether your program has accomplished those goals?

- Success and retention rates aggregately and by course
- PASS attendance, academic grades, and success rates
- Quantity and percentage of students participating in Jumpstart and placing out of developmental math courses.

## RESOURCE ALLOCATION

In order to accomplish those goals, what resources do you need? You will need to fill out the resource request forms and include them with your Program Review Report.

- Staffing:
  - 2-3 full time developmental math faculty
  - Hiring of a data analysis coordinator to work in collaboration with the GWC research time
  - Succession planning for shared leadership within the GWC developmental math team
- Facilities
  - Access to classrooms that do not have stadium seating and allow collaborative learning environment for students to work in group settings
  - Location for developmental math specific support center for students supporting collaborative work, help from instructors, and other resources for developmental math course.
- Technology
  - Access to ALEKS for all PASS leaders
  - ALEKS access for students participating in Jumpstart (and have not already enrolled in a GWC developmental math course)
  - Elmo in each classroom
  - Chrome book carts of 64 for each developmental math classroom to support blended learning both inside and outside of the lab. With chrome books, the labs could occur in the same classroom as the lectures.
- Equipment
  - Classroom sets of manipulative for both math 10 and math 30 classrooms
  - Instructional methods research-based books to center professional development under
- Funding for Professional Development:
  - Monthly professional development - twice a month
  - Hourly stipends for part time instructors
  - Compensation for full time faculty to observe other developmental math departments across California and bring back best practice