



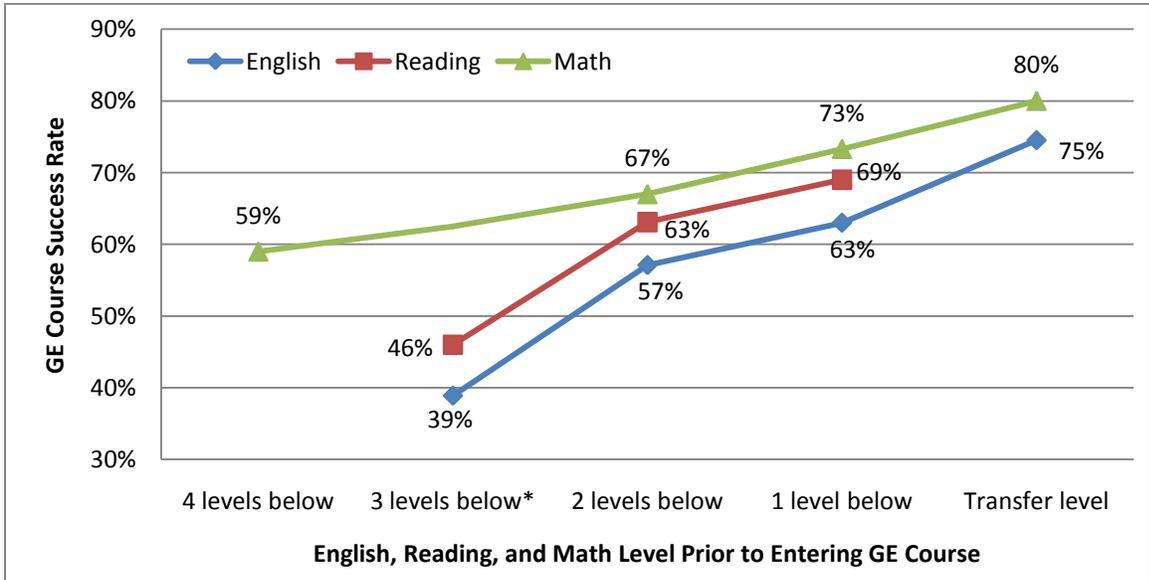
**Research Briefs from the Office of Research & Planning
The Relationship between Student Success in Six General Education
Courses and the Student’s English, Reading, and Math Levels**

Purpose: The purpose of this brief is to illustrate whether a student’s English, math, and/or reading level is related to student success in the following six General Education (GE) transferable courses: ANTHRO-102 (Cultural Anthropology), CD-105 (Child Growth and Development), ECON-100 (Introduction to Economics), ECON-200 (Principles of Macroeconomics), ECON-201 (Principles of Microeconomics), HIST-100 (History of the United States to 1877), HIST-101 (History of the United States 1865 to Present), PSYCH-100 (General Psychology), and SOC-100 (Introduction to Sociology).

Summary of Findings:

- As English, reading, and math skill level of the student increases so does the likelihood that students will successfully complete one of the six GE courses
- The overall success rate for students at the lowest English course level (i.e. READ-925) was 39% and the success rate at the highest English course level (i.e. ENGL-101 or higher) is 80%
- The overall success rate for students at the lowest reading course level (i.e. READ-925) was 46% and the success rate at the highest reading course level (i.e. READ-078) is 69%
- The overall success rate for students at the lowest math course level (i.e. MATH-942/943) was 59% and the success rate at the highest math course level (i.e. all transfer level courses) is 80%

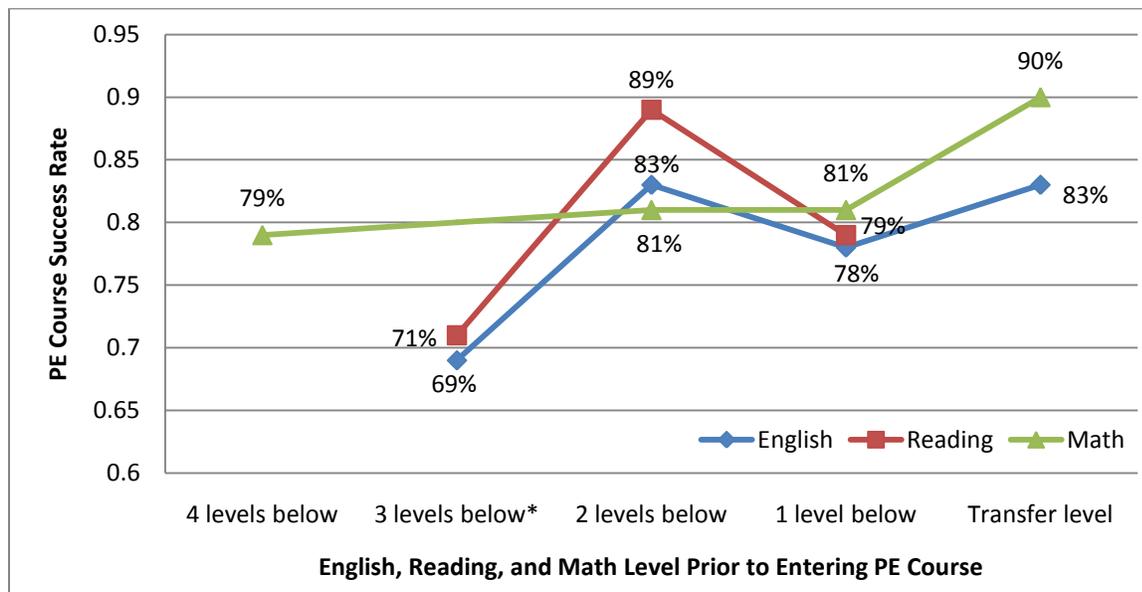
Figure 1: English, Reading, and Math Skill Level by GE Course Success.



*Results for MATH-952/953 (Prealgebra) were excluded because they only included less than 1% of all records.

Methodology: The success rates in 2009 – 2010 for students who earned a GOR in the six General Education (GE) courses were examined by English, reading, and math levels to examine the relationship between skill level and student success. The following GE courses were selected because they have consistently had the highest enrollments each year: ANTHRO-102 (Cultural Anthropology), CD-105 (Child Growth and Development), ECON-100 (Introduction to Economics), ECON-200 (Principles of Macroeconomics), ECON-201 (Principles of Microeconomics), HIST-100 (History of the United States to 1877), HIST-101 (History of the United States 1865 to Present), PSYCH-100 (General Psychology), and SOC-100 (Introduction to Sociology). In addition to the six GE courses listed above, two PE courses were also examined as a method of controlling for whether skill level is related to student success. Specifically, if skill level is positively and linearly related to student success than there will not be a positive linear relationship with PE. The two PE courses that were chosen were PE/I-108X4 (Weight Training) and PE/I-168X4 (Yoga) because they are two PE courses with the highest enrollment. The method of using PE courses as a control was presented at the 2011 Research and Planning Group Conference (Johnstone, 2011). Figure 2 and Tables 1 – 6 indicate that skill level did not have a positive linear relationship with GE course success.

Figure 2: English, Reading, and Math Skill Level by PE/I Course Success.



*Results for MATH-952/953 (Prealgebra) were excluded because they only included less than 1% of all records.

Two methods were used to identify a student's skill level prior to entering the GE or PE course. The highest English, reading, or math course successfully completed or a student's highest placement result was used. As an illustration, if a student placed into ENGL-101 then that was treated as a student successfully completing ENGL-015. The highest placement or successful course completion was used for English, reading, and math.

Definitions: The number of GOR refers to one of the following grades and is also the number of students enrolled at census: A, B, C, D, F, P (CR), NP (NC), I, or W. Success rate is the number of A, B, C, or P grades divided by the number of GOR. A positive linear relationship means that if students are at a lower skill level they will have a lower success rate and if they are at a higher skill level they will have a higher success rate.

Limitations: The information illustrated in this brief is not intended to be used as justification to establish prerequisites for the GE courses. Performance in the GE courses was only examined for one academic year (i.e. Summer 2009, Fall 2010, and Spring 2010), and research would need to include at least one additional year while excluding summer to provide a better indication of the need to establish a prerequisite. In addition, disproportionate impact would also need to be examined.

A second limitation is the number of cases by course within each school year. For example, two areas of concern included the economics courses and the MATH-952/953 (Prealgebra) math level. First, referring to Tables 1 – 3, very few students had either successfully completed or taken the assessment test prior to earning a GOR in ECON-100, 200, or 201 suggesting that the nonlinear relationships in the economics courses may be misleading. Second, very few students successfully completed MATH-952/953 or placed into MATH-090 prior to taking a GE course. For instance, in total, only 44 records (1%) identified students at the MATH-952/953 skill level prior to taking a GE course, again suggesting that the relationship to GE success may be misleading (see Table 3).

A third limitation is the percent of records where students had either successfully completed an English, reading, or math course or those who had assessed prior to the start of the GE course. Reading had the lowest percentage (29%) of records where students had either successfully completed a reading course or assessed prior to earning a GOR in a GE course. In addition, 56% had assessed or successfully completed a math course and 64% had assessed or successfully completed an English course prior to the start of the GE courses. Accordingly, the results for English are more likely to be an accurate reflection of skill level and GE course success than either math or reading, and math is likely more accurate than reading.

Findings: Tables 1 – 3 illustrate the relationship between English, reading, and math skill level with success in the six GE courses. Tables 4 – 6 summarize the information in Tables 1 -3. The results indicate that as English, reading, and math skill level of the student increases so does the likelihood that students will successfully complete the GE course. For instance, the overall success rate while excluding the PE/I courses for students at the lowest English course level (i.e. READ-925) was 39% and the success rate at the highest English course level (i.e. ENGL-101 or higher) was 80%. This positive linear relationship exists for English with ANTHRO-102, CD-105, HIST-100 and 101, PSYCH-100, and SOC-100. In addition, the overall success rate while excluding the PE/I courses for students at the lowest reading course level (i.e. READ-925) was 46% and the success rate at the highest reading course level (i.e. READ-078) was 69%. This positive linear relationship exists for reading with ANTHRO-102, HIST-100 and 101, PSYCH-100, and SOC-100. Finally, the positive linear relationship also exists for math when excluding MATH-952/953 because of the low number of cases. The overall success rate while excluding the PE/I courses for students at the lowest math course level (i.e. MATH-942/943) was 59% and the success rate at the highest math course level (i.e. all transfer level courses) was 80%. This positive linear relationship exists for math with ANTHRO-102, CD-105, HIST-100 and 101, and PSYCH-100.

Reference:

Johnstone, R. (2011). Three reports that could energize your campus discussions about student success. *2011 RP Group Conference*. Retrieved June 6, 2011 from <http://www.rpgroup.org/sites/default/files/Session%209%20-%20Three%20Studies%20to%20Drive%20Student%20Success.pptx>

Table 1: English Skill Level by GE and PE Course Success Rate in the 2009 – 2010 Academic Year.

Course/Level	Success	GOR	%	Course/Level	Success	GOR	%
ANTHO-102				HIST-101			
Unknown	36	64	56.3	Unknown	146	277	52.7
READ-925	1	5	20.0	READ-925	13	36	36.1
ENGL-914	4	14	28.6	ENGL-914	24	43	55.8
ENGL-015	12	27	44.4	ENGL-015	90	149	60.4
ENGL-101 or higher	47	60	78.3	ENGL-101 or higher	227	309	73.5
Total	100	170	58.8	Total	500	814	61.4
CD-105				PE/I-108X4			
Unknown	101	181	55.8	Unknown	83	97	85.6
READ-925	8	25	32.0	READ-925	31	41	75.6
ENGL-914	16	35	45.7	ENGL-914	31	35	88.6
ENGL-015	43	82	52.4	ENGL-015	58	67	86.6
ENGL-101 or higher	83	124	66.9	ENGL-101 or higher	73	82	89.0
Total	251	447	56.2	Total	276	322	85.7
ECON-100				PE/I-168X4			
Unknown	13	34	38.2	Unknown	69	116	59.5
READ-925	4	4	100.0	READ-925	12	21	57.1
ENGL-914	2	3	66.7	ENGL-914	24	31	77.4
ENGL-015	12	18	66.7	ENGL-015	35	52	67.3
ENGL-101 or higher	27	49	55.1	ENGL-101 or higher	96	122	78.7
Total	58	108	53.7	Total	236	342	69.0
ECON-200				PSYCH-100			
Unknown	26	55	47.3	Unknown	257	394	65.2
READ-925	1	1	100.0	READ-925	20	45	44.4
ENGL-914	8	8	100.0	ENGL-914	53	92	57.6
ENGL-015	22	31	71.0	ENGL-015	165	227	72.7
ENGL-101 or higher	62	93	66.7	ENGL-101 or higher	294	360	81.7
Total	119	188	63.3	Total	789	1,118	70.6
ECON-201				SOC-100			
Unknown	31	63	49.2	Unknown	197	310	63.5
READ-925	0	1	0.0	READ-925	21	48	43.8
ENGL-914	5	6	83.3	ENGL-914	66	100	66.0
ENGL-015	14	26	53.8	ENGL-015	88	126	69.8
ENGL-101 or higher	58	76	76.3	ENGL-101 or higher	179	225	79.6
Total	108	172	62.8	Total	551	809	68.1
HIST-100				TOTAL (Excludes PE/I Courses)			
Unknown	93	197	47.2	Unknown	900	1,575	57.1
READ-925	7	28	25.0	READ-925	75	193	38.9
ENGL-914	11	30	36.7	ENGL-914	189	331	57.1
ENGL-015	64	123	52.0	ENGL-015	510	809	63.0
ENGL-101 or higher	155	223	69.5	ENGL-101 or higher	1,132	1,519	74.5
Total	330	601	54.9	Total	2,806	4,427	63.4

Table 2: Reading Skill Level by GE and PE Course Success Rate in the 2009 – 2010 Academic Year.

Course/Level	Success	GOR	%	Course/Level	Success	GOR	%
ANTHO-102				HIST-101			
Unknown	73	117	62.4	Unknown	360	576	62.5
READ-925	2	10	20.0	READ-925	19	52	36.5
READ-956	8	14	57.1	READ-956	26	44	59.1
READ-078	17	29	58.6	READ-078	95	142	66.9
Total	100	170	58.8	Total	500	814	61.4
CD-105				PE/I-108X4			
Unknown	185	306	60.5	Unknown	159	186	85.5
READ-925	14	41	34.1	READ-925	37	49	75.5
READ-956	16	28	57.1	READ-956	26	27	96.3
READ-078	36	72	50.0	READ-078	54	60	90.0
Total	251	447	56.2	Total	276	322	85.7
ECON-100				PE/I-168X4			
Unknown	36	77	46.8	Unknown	167	243	68.7
READ-925	4	5	80.0	READ-925	14	23	60.9
READ-956	2	4	50.0	READ-956	30	36	83.3
READ-078	16	22	72.7	READ-078	25	40	62.5
Total	58	108	53.7	Total	236	342	69.0
ECON-200				PSYCH-100			
Unknown	82	139	59.0	Unknown	557	795	70.1
READ-925	5	5	100.0	READ-925	38	66	57.6
READ-956	3	4	75.0	READ-956	54	81	66.7
READ-078	29	40	72.5	READ-078	140	176	79.5
Total	119	188	63.3	Total	789	1118	70.6
ECON-201				SOC-100			
Unknown	85	139	61.2	Unknown	373	548	68.1
READ-925	2	3	66.7	READ-925	39	74	52.7
READ-956	2	5	40.0	READ-956	47	66	71.2
READ-078	19	25	76.0	READ-078	92	121	76.0
Total	108	172	62.8	Total	551	809	68.1
HIST-100				TOTAL (Excludes PE/I Courses)			
Unknown	249	439	56.7	Unknown	2,000	3,136	63.8
READ-925	14	42	33.3	READ-925	137	298	46.0
READ-956	13	25	52.0	READ-956	171	271	63.1
READ-078	54	95	56.8	READ-078	498	722	69.0
Total	330	601	54.9	Total	2,806	4,427	63.4

Table 3: Math Skill Level by GE and PE Course Success Rate in the 2009 – 2010 Academic Year.

Course/Level	Success	GOR	%	Course/Level	Success	GOR	%
ANTHRO-102				HIST-101			
Unknown	43	77	55.8	Unknown	180	357	50.4
MATH-942/943	18	40	45.0	MATH-942/943	87	145	60.0
MATH-952/953	1	1	100.0	MATH-952/953	6	7	85.7
MATH-090	4	6	66.7	MATH-090	31	50	62.0
MATH-095	12	16	75.0	MATH-095	105	134	78.4
MATH-108/115	8	10	80.0	MATH-108/115	29	37	78.4
MATH-102	11	15	73.3	MATH-102	46	63	73.0
MATH-103	1	3	33.3	MATH-103	7	11	63.6
MATH-151	2	2	100.0	MATH-151	2	3	66.7
MATH-250				MATH-250	2	2	100.0
Other Transfer Courses				Other Transfer Courses	5	5	100.0
Total	100	170	58.8	Total	500	814	61.4
CD-105				PE/I-108X4			
Unknown	107	205	52.2	Unknown	97	121	80.2
MATH-942/943	42	97	43.3	MATH-942/943	88	104	84.6
MATH-952/953	2	3	66.7	MATH-952/953	1	1	100.0
MATH-090	17	26	65.4	MATH-090	17	20	85.0
MATH-095	41	63	65.1	MATH-095	35	37	94.6
MATH-108/115	12	16	75.0	MATH-108/115	7	7	100.0
MATH-102	25	29	86.2	MATH-102	22	22	100.0
MATH-103	2	3	66.7	MATH-103	5	5	100.0
MATH-151	0	1	0.0	MATH-151	1	1	100.0
MATH-250	0	1	0.0	MATH-250			
Other Transfer Courses	3	3	100.0	Other Transfer Courses	3	4	75.0
Total	251	447	56.2	Total	276	322	85.7
ECON-100				PE/I-168X4			
Unknown	15	44	34.1	Unknown	85	141	60.3
MATH-942/943	11	14	78.6	MATH-942/943	54	76	71.1
MATH-952/953	1	1	100.0	MATH-952/953			
MATH-090	4	8	50.0	MATH-090	21	27	77.8
MATH-095	10	15	66.7	MATH-095	39	54	72.2
MATH-108/115	5	7	71.4	MATH-108/115	9	12	75.0
MATH-102	7	12	58.3	MATH-102	23	25	92.0
MATH-103	1	2	50.0	MATH-103	2	3	66.7
MATH-151	3	4	75.0	MATH-151	0	1	0.0
MATH-250				MATH-250			
Other Transfer Courses	1	1	100.0	Other Transfer Courses	3	3	100.0
Total	58	108	53.7	Total	236	342	69.0

(Table 3 continues on the next page!)

(Table 3 continued!)

Course/Level	Success	GOR	%	Course/Level	Success	GOR	%
ECON-200				PSYCH-100			
Unknown	29	64	45.3	Unknown	327	501	65.3
MATH-942/943	14	19	73.7	MATH-942/943	140	214	65.4
MATH-952/953	1	1	100.0	MATH-952/953	12	16	75.0
MATH-090	6	11	54.5	MATH-090	65	87	74.7
MATH-095	17	29	58.6	MATH-095	136	178	76.4
MATH-108/115	15	22	68.2	MATH-108/115	31	36	86.1
MATH-102	23	27	85.2	MATH-102	56	62	90.3
MATH-103	4	4	100.0	MATH-103	5	6	83.3
MATH-151	5	5	100.0	MATH-151	6	7	85.7
MATH-250	5	5	100.0	MATH-250	6	6	100.0
Other Transfer Courses	0	1	0.0	Other Transfer Courses	5	5	100.0
Total	119	188	63.3	Total	789	1118	70.6
ECON-201				SOC-100			
Unknown	30	68	44.1	Unknown	210	352	59.7
MATH-942/943	13	16	81.3	MATH-942/943	115	180	63.9
MATH-952/953	3	3	100.0	MATH-952/953	9	9	100.0
MATH-090	6	11	54.5	MATH-090	50	61	82.0
MATH-095	15	24	62.5	MATH-095	94	117	80.3
MATH-108/115	11	14	78.6	MATH-108/115	24	28	85.7
MATH-102	21	26	80.8	MATH-102	36	44	81.8
MATH-103	3	4	75.0	MATH-103	7	10	70.0
MATH-151	3	3	100.0	MATH-151	1	2	50.0
MATH-250	3	3	100.0	MATH-250	1	2	50.0
Other Transfer Courses				Other Transfer Courses	4	4	100.0
Total	108	172	62.8	Total	551	809	68.1
HIST-100				TOTAL (Excludes PE/I Courses)			
Unknown	119	258	46.1	Unknown	1060	1926	55.0
MATH-942/943	39	87	44.8	MATH-942/943	479	812	59.0
MATH-952/953	2	3	66.7	MATH-952/953	37	44	84.1
MATH-090	24	49	49.0	MATH-090	207	309	67.0
MATH-095	68	103	66.0	MATH-095	498	679	73.3
MATH-108/115	21	30	70.0	MATH-108/115	156	200	78.0
MATH-102	39	49	79.6	MATH-102	264	327	80.7
MATH-103	7	9	77.8	MATH-103	37	52	71.2
MATH-151	5	6	83.3	MATH-151	27	33	81.8
MATH-250	2	2	100.0	MATH-250	19	21	90.5
Other Transfer Courses	4	5	80.0	Other Transfer Courses	22	24	91.7
Total	330	601	54.9	Total	2806	4427	63.4

Table 4: Summary of English Skill Level by GE and PE Course Success Rate in the 2009 – 2010 Academic Year.

English Levels	Course Success Rates											
	ANTHRO-102	CD-105	ECON-100	ECON-200	ECON-201	HIST-100	HIST-101	PE/I-108X4	PE/I-168X4	PSYCH-100	SOC-100	Total*
Not in English Course	56.3%	55.8%	38.2%	47.3%	49.2%	47.2%	52.7%	85.6%	59.5%	65.2%	63.5%	57.1%
READ-925	20.0%	32.0%	100.0%	100.0%	0.0%	25.0%	36.1%	75.6%	57.1%	44.4%	43.8%	38.9%
ENGL-914	28.6%	45.7%	66.7%	100.0%	83.3%	36.7%	55.8%	88.6%	77.4%	57.6%	66.0%	57.1%
ENGL-015	44.4%	52.4%	66.7%	71.0%	53.8%	52.0%	60.4%	86.6%	67.3%	72.7%	69.8%	63.0%
ENGL-101 or higher	78.3%	66.9%	55.1%	66.7%	76.3%	69.5%	73.5%	89.0%	78.7%	81.7%	79.6%	74.5%
Total	58.8%	56.2%	53.7%	63.3%	62.8%	54.9%	61.4%	85.7%	69.0%	70.6%	68.1%	63.4%
Total GOR	170	447	108	188	172	601	814	322	342	1,118	809	4,427

Table 5: Summary of Reading Skill Level by GE and PE Course Success Rate in the 2009 – 2010 Academic Year.

Reading Levels	Course Success Rates											
	ANTHRO-102	CD-105	ECON-100	ECON-200	ECON-201	HIST-100	HIST-101	PE/I-108X4	PE/I-168X4	PSYCH-100	SOC-100	Total*
Not in Reading Course	62.4%	60.5%	46.8%	59.0%	61.2%	56.7%	62.5%	85.5%	68.7%	70.1%	68.1%	63.8%
READ-925	20.0%	34.1%	80.0%	100.0%	66.7%	33.3%	36.5%	75.5%	60.9%	57.6%	52.7%	46.0%
READ-956	57.1%	57.1%	50.0%	75.0%	40.0%	52.0%	59.1%	96.3%	83.3%	66.7%	71.2%	63.1%
READ-078	58.6%	50.0%	72.7%	72.5%	76.0%	56.8%	66.9%	90.0%	62.5%	79.5%	76.0%	69.0%
Total	58.8%	56.2%	53.7%	63.3%	62.8%	54.9%	61.4%	85.7%	69.0%	70.6%	68.1%	63.4%
Total GOR	170	447	108	188	172	601	814	322	342	1,118	809	4,427

Table 6: Summary of Math Skill Level by GE and PE Course Success Rate in the 2009 – 2010 Academic Year.

Math Levels	Course Success Rates											
	ANTHRO-102	CD-105	ECON-100	ECON-200	ECON-201	HIST-100	HIST-101	PE/I-108X4	PE/I-168X4	PSYCH-100	SOC-100	Total*
Not in Math Course	55.8%	52.2%	34.1%	45.3%	44.1%	46.1%	50.4%	80.2%	60.3%	65.3%	59.7%	55.0%
MATH-942/943	45.0%	43.3%	78.6%	73.7%	81.3%	44.8%	60.0%	84.6%	71.1%	65.4%	63.9%	59.0%
MATH-952/953	100.0%	66.7%	100.0%	100.0%	100.0%	66.7%	85.7%	100.0%		75.0%	100.0%	84.1%
MATH-090	66.7%	65.4%	50.0%	54.5%	54.5%	49.0%	62.0%	85.0%	77.8%	74.7%	82.0%	67.0%
MATH-095	75.0%	65.1%	66.7%	58.6%	62.5%	66.0%	78.4%	94.6%	72.2%	76.4%	80.3%	73.3%
MATH-108/115	80.0%	75.0%	71.4%	68.2%	78.6%	70.0%	78.4%	100.0%	75.0%	86.1%	85.7%	78.0%
MATH-102	73.3%	86.2%	58.3%	85.2%	80.8%	79.6%	73.0%	100.0%	92.0%	90.3%	81.8%	80.7%
MATH-103	33.3%	66.7%	50.0%	100.0%	75.0%	77.8%	63.6%	100.0%	66.7%	83.3%	70.0%	71.2%
MATH-151	100.0%	0.0%	75.0%	100.0%	100.0%	83.3%	66.7%	100.0%	0.0%	85.7%	50.0%	81.8%
MATH-250		0.0%		100.0%	100.0%	100.0%	100.0%			100.0%	50.0%	90.5%
Other Transfer Courses		100.0%	100.0%	0.0%		80.0%	100.0%	75.0%	100.0%	100.0%	100.0%	91.7%
Total	58.8%	56.2%	53.7%	63.3%	62.8%	54.9%	61.4%	85.7%	69.0%	70.6%	68.1%	63.4%
Total GOR	170	447	108	188	172	601	814	322	342	1,118	809	4,427

*The Total in Tables 4 – 6 includes all courses except for the PE/I courses.