

Prerequisite Study

This report contains the results of research on how students at different levels of writing, reading, and mathematics readiness performed in General Education (GE) courses that do not have prerequisites. The study was undertaken at the request of the Educational Advisory Council (EAC) and the Vice-President for Academic and Student Affairs, and has been generally directed at the question of whether this set of courses should have prerequisites.

Need for the Study

From the Policy Committee of the EAC:

...the Policy Committee has requested a study from Institutional Research to provide some "hard" data before moving forward with a prerequisite proposal.

- The study will track the success of students tested by ASSET who have scored at various levels in Reading, Writing, and Math in a wide range of LDC courses.

The initial results of this study provide that information. Since the question raised relates to whether it may be appropriate to establish prerequisites for these courses, this researcher reframed the question as:

When considering General Education courses that do not currently have prerequisites, is the successful completion rate of students with lower (pre-college) levels of writing, reading, and quantitative preparation (skills) such that PCC should establish prerequisites for those courses?

Before going into the details of this research, some discussion of additional elements that may be helpful in developing a more complete analytical framework is in order.

- Additional context is needed. While we can create tables showing how students at different levels of preparation in writing, reading and quantitative skills perform in this set of GE courses, we do not have all the contextual information needed to adequately interpret those results. For example, to what extent do students in each of these 207 courses-spread over 31 subject areas-need writing, reading and quantitative skills in order to have a reasonable expectation of success? This information should come from the faculty teaching those courses, perhaps through the SACs responsible for the curriculum in the relevant disciplines.
- Successful completion rates (grades of A, B, C or P) by readiness level in this report have been aggregated by discipline (subject code), and vary from discipline to discipline. When going down to the next level of aggregation, by courses within disciplines, there is also considerable variability. This means, in part, that prerequisite setting is an activity that may be most appropriately accomplished at the course level.
- As information becomes available on which courses are candidates for prerequisites, methods for estimating the impact on student FTE can be agreed to, and those estimates can be produced.

The Setting of Readiness Levels

- Reading, writing and mathematics course **academic history data sets** for students enrolled during the Fall, Winter, and/or Spring terms of 2001-01, 2002-03 and 2003-04 academic years were generated. These data sets included courses from the 1994 Summer term through the term just prior to each of the nine terms in the study. The 1994 Summer term was the first term for which course data are available in Banner. Along with placement test scores, these data sets were used to classify students' levels of readiness in these subjects.
- Readiness levels were defined as readiness to take a specific level course at the start of each of the nine terms in the study.
 - Readiness was defined using previous course successful completion or, lacking that, ASSET or COMPASS placement test scores, if taken before the start of the applicable term. For students enrolled in more than one of the terms, the level of readiness was adjusted based on successful DE / Pre-college course completion in the previous term. For example, a student who was classified as WR 80 ready at the start of the Fall 2003 term and successfully completed that course during the Fall 2003 term, would be re-classified as WR 90 ready for the Winter 2004 term. **Test scores were captured for the five years prior to the start of each of the academic years included in the study.**
 - Course completion took precedence over placement test scores. This means there may have been students who tested as ready to take a higher level course, but were classified according to the lower level Reading, Writing or Mathematics courses that they had actually completed.
- There was a sizable number of students for whom there was no basis to classify their readiness levels. For the three subject areas the proportion of enrollments by students for whom the data did not exist for such classification were: 31.15% for Writing readiness levels, 42.92% for Reading readiness levels and 37.93% for Mathematics readiness level. Possible explanations for this include:
 - Some students enrolled in the nine terms included in this study may have fulfilled their requirements prior to 1994.
 - Some students may have taken the coursework at other institutions and transfer courses are not routinely entered into PCC's Banner student information system.
 - Some students may have satisfied requirements with credits earned through Advanced Placement classes or CLEP (College Level Examination Program) tests.

Using this classification system resulted in the groups found in Table 1.

Table 1. Mathematics, Writing and Reading Readiness Levels

<u>Mathematics</u>	<u>Writing</u>	<u>Reading</u>
MTH 10	WR 80	RD 80
MTH 20	WR 90	RD 90
MTH 60/61	WR 115	RD 115
MTH 65	WR 121	Successfully Completed / Tested out of RD 115
MTH 70/95	Successfully Completed / Tested out of WR 121	
Successfully Completed / Tested out of MTH 95		

There is a range of test scores in each of the three subject areas where the *recommendation* is that the student see a Developmental Education Advisor. This range is below the scores at which WR 80, RD 80, and MTH 10 are the recommended courses. For this study, those scores were included in the WR 80, RD 80, and MTH 10 readiness groups, since those were the most likely placements.

Writing Readiness Levels

Table 2 contains the writing readiness levels of students enrolled in the GE classes in this analysis. It is the readiness level at the start of each term. These are enrollments, so there is duplication here, as students may have been enrolled in multiple terms and in more than one course per term.

Table 2. Writing Readiness Level

<u>Level</u>	<u>Description</u>	<u>Frequency</u>	<u>%</u>
WR 80	Tested into WR 80	1,781	1.53
WR 90	Successful WR 80 or tested into WR 90	4,881	4.19
WR 115	Successful WR 90 or tested into WR 115	10,370	8.90
WR 121	Successful WR 115 or tested into WR 121	17,964	15.42
Completed WR 121	Successful WR 121 or tested out of WR 121	46,685	40.08
No Basis for Assigning a Level	Data to establish level not in Banner	34,795	29.87
Total		116,476	100

Reading Readiness Levels

Table 3 contains the same information for Reading readiness levels. Again, these are enrollments, so there is duplication.

Table 3. Reading Readiness Level

<u>Level</u>	<u>Description</u>	<u>Frequency</u>	<u>%</u>
RD 80	Tested into Rd 80	1,943	1.67
RD 90	Successful RD 80 or tested into RD 90	7,272	6.24
RD 115	Successful RD 90 or tested into RD 115	13,393	11.50
Completed / Tested out of RD 115	Successful RD 115 or tested out of RD 115	53,000	45.50
No Basis for Assigning a Level	Data to establish level not in Banner	40,868	35.09
Total		116,476	100

Mathematics Readiness Levels.

Table 4 contains similar information for Mathematics readiness levels. The previous note about duplication applies. A note on Mathematics readiness levels: During the terms in question, students could **not** test into MTH 65. They could test into a lower level Introductory Algebra course, or into the MTH 70 (Introduction to Intermediate Algebra). Also, successful completion of MTH 65 fulfilled the prerequisite for MTH 70 and for MTH 95 (Intermediate Algebra).

Table 4. Mathematics Readiness Level

Level	Description	Frequency	%
MTH 10	Tested into Math 10	1,875	1.61
MTH 20	Successful MTH 10 or tested into MTH 20	8,583	7.37
MTH 60/61	Successful MTH 20 or tested into MTH 60/61	17,297	14.85
MTH 65	Successful MTH 60/61	9,130	7.84
MTH 70/95	Tested into MTH 70 or Successful MTH 65	4,660	4.00
MTH 95	Successful MTH 65/70 or tested into MTH 95	14,363	12.33
Completed/Tested out of MTH 95	Successful MTH 95 or tested out of MTH 95	19,711	16.92
No Basis for Assigning a Level	Data to establish level not in Banner	40,857	35.08
Total		116,476	100

General Education Courses

- GE courses without prerequisites (with the exception of second year language courses) taken during the Fall 2003, Winter 2004 and Spring 2004 terms were used as the target courses. There were 207 such courses in 31 disciplines.
- Courses were defined as successfully completed where grades of A, B, C, or P were earned.
- Grades of AUD (Audit) were removed from the analysis. All other grades were coded as not successfully completed.

Initial Findings

Results have been produced at different levels of aggregation. There are overall results for performance by readiness levels in Writing, Reading and Mathematics in Tables 5, 9 and 13 respectively. For the next level of aggregation, subject codes were grouped into three categories; 1) Arts and Letters, 2) Social Sciences, and 3) Science, using the same groupings as in the AAOT Distribution lists (PCC catalog, 2004-05, p. 22). There were four courses in a total of three subject areas that are not in the distribution lists. These were classified as follows: CIS – Science and Mathematics, HEC – Social Science, WLD 295 – Sculpture Welding II – Arts and Letters. The results aggregated by discipline within these three broader categories are in Tables 6-8 for Writing readiness levels, Tables 10-12 for Reading readiness levels and Tables 14-16 for Mathematics readiness levels. These tables also include a row that contains the results for all the enrollments in the category.

Proposed Next Steps

- Request that the SACs review this study's findings on the courses in their disciplines. Specifically the SACs would be asked to provide information on what levels of readiness in Writing, Reading and Mathematics are needed for students to benefit from and have a reasonable expectation of success in each of the courses overseen by the SAC.

- Identify ‘candidate’ courses for prerequisites based on SAC review and other information identified as relevant.
- Estimate impact on students and on student FTE.

The Tables

These tables only include the Successful Completion columns for each level of readiness, and the columns are headed with the letters **SC**. The second column from the left, labeled ‘**All**’ includes the total number of enrollments for each row and includes **all** the enrollments in the end of term extracts whether the outcome was Successful Completion or not – with the previously noted exception of AUD grades.

Early Notable Findings

- There were relatively few enrollments in these GE courses by students at the lowest levels of readiness. Students who were Writing 80 ready accounted for only 1.53% enrollments over the nine terms. Students who were Reading 80 ready accounted for 1.67%. while students who were MTH 10 ready accounted for 1.61% .
- When aggregating the results by subject code, there was a wide range of successful completion rates within each of the readiness levels. For example:
 - WR 115 readiness level: 92.9% to 40% successful completion rates by subject area (Median=71.2%).
 - RD 115 readiness level: 91.1% to 59.1% successful completion rates by subject area (Median=78.4%).
 - MTH 60/61 readiness level: 100% to 61.9% successful completion rates by subject area (Median=77%).

Writing Readiness and Successful Completion of General Education Courses without Prerequisites

Table 5. Writing Readiness Levels and Success in General Education Courses without Prerequisites

	All	Writing Readiness Level at Start of Term											
		WR 80		WR 90		WR 115		WR 121		Successfully		No Basis for	
		SC		SC		SC		SC		SC		SC	
		N	%	N	%	N	%	N	%	N	%	N	%
Total Enrolled in GE w/o Prereq	116,476	1,075	60.4	3,115	63.8	7,376	71.1	13,944	77.6	39,828	85.3	28,070	80.7

Table 6. Writing Readiness Levels and Arts and Letters Subject Areas

	All	Writing Readiness Level at Start of Term											
		WR 80		WR 90		WR 115		WR 121		Successfully Completed WR 121		No Basis for Level	
		SC		SC		SC		SC		SC		SC	
		N	%	N	%	N	%	N	%	N	%	N	%
All Arts and Letters GE w/o Prereq	38,973	375	65.0	1,064	70.1	2,405	75.6	4,594	81.4	13,367	88.4	10,979	84.9
American Sign Language	566	7	70.0	17	68.0	42	82.4	67	79.8	126	84.6	206	83.4
Art	17,161	190	63.8	536	73.2	1,178	77.9	1,960	82.8	5,573	89.2	5,163	86.0
French	911	2	33.3	18	64.3	46	66.7	129	84.9	269	84.6	281	83.1
German	719	10	76.9	15	68.2	45	77.6	85	84.2	220	85.9	234	87.0
Humanities	226	4	66.7	2	40.0	6	40.0	20	87.0	99	89.2	61	92.4
Japanese	918	18	85.7	38	82.6	62	80.5	141	87.6	239	91.6	308	87.5
Music	2,552	24	68.6	69	72.6	172	74.8	296	80.2	977	91.4	641	85.0
Philosophy	6,800	29	63.0	124	60.5	311	71.2	811	78.9	2,697	86.9	1,609	81.3
Russian	496	6	100.0	10	90.9	26	92.9	99	89.2	140	92.7	173	91.5
Spanish	4,000	18	46.2	68	57.1	202	70.6	460	77.4	1,347	84.5	1,135	83.0
Speech	3,060	62	68.1	131	70.8	260	75.8	334	79.3	1,020	90.3	772	86.6
Theatre Arts	381	4	80.0	15	75.0	20	66.7	34	79.1	138	93.2	121	89.6
Welding	16	1	100.0	1	100.0	1	50.0	2	100.0	2	100.0	8	100.0
Writing	1,167			20	83.3	34	79.1	156	83.9	520	88.7	267	81.4

Table 7. Writing Readiness Levels and Social Science Subject Areas

	All	Writing Readiness Level at Start of Term											
		WR 80		WR 90		WR 115		WR 121		Successfully Completed WR 121		No Basis for Level	
		SC		SC		SC		SC		SC		SC	
		N	%	N	%	N	%	N	%	N	%	N	%
All Social Science GE w/o Prereq	62,577	557	56.6	1,760	61.4	4,135	69.1	7,464	76.3	21,367	84.3	13,737	78.0
Anthropology	3,243	16	45.7	64	66.0	157	72.4	378	78.6	1,024	85.3	983	81.0
Early Education and Family Studies (HEC)	417	4	66.7	8	44.4	18	50.0	54	77.1	86	74.1	117	68.4
Economics	9,165	58	62.4	177	59.2	409	69.1	862	75.2	3,415	82.7	2,236	76.9
Geography	2,634	31	57.4	66	64.7	182	68.9	284	77.8	831	84.7	690	79.5
History	14,462	93	50.3	440	58.4	1,005	65.3	1,816	75.2	4,821	84.0	2,942	76.7
Political Science	4,278	26	55.3	97	52.4	249	61.5	462	67.2	1,323	77.9	898	71.6
Psychology	17,767	216	57.8	615	64.3	1,380	72.6	2,330	76.8	6,012	84.6	3,490	79.4
Sociology	9,518	109	60.9	274	66.3	677	71.9	1,169	81.2	3,402	87.9	2,142	80.2
Women s Studies	1,093	4	36.4	19	46.3	58	65.2	109	73.2	453	89.2	239	81.0

Table 8. Writing Readiness and Science Subject Areas

	All	Writing Readiness Level at Start of Term											
		WR 80		WR 90		WR 115		WR 121		Successfully Completed WR 121		No Basis for Level	
		SC		SC		SC		SC		SC		SC	
		N	%	N	%	N	%	N	%	N	%	N	%
All Science GE w/o Prereq	14,926	143	65.0	291	58.4	836	69.4	1,886	74.4	5,094	81.9	3,354	78.9
Biology	6,351	53	57.6	139	55.4	450	69.0	954	74.2	1,942	78.7	1,225	76.5
Chemistry	1,086	19	67.9	26	59.1	68	75.6	168	84.4	364	86.7	261	85.6
Computer Information Systems	2,334	30	69.8	44	55.7	98	59.8	249	67.8	628	74.7	621	73.9
Computer Science	395	7	70.0	10	71.4	17	60.7	65	68.4	119	85.6	73	67.0
Environmental Studies (ESR)	596	4	66.7	11	61.1	22	84.6	60	70.6	255	85.9	133	81.1
General Science (GS)	1,469	7	63.6	13	54.2	60	67.4	123	75.5	705	84.0	280	81.6
Geology	1,616	11	73.3	20	62.5	68	79.1	133	77.8	683	87.5	452	85.1
Physics	1,079	12	80.0	28	77.8	53	75.7	134	79.8	398	92.6	309	85.8

Reading Readiness and Successful Completion of GE Courses without Prerequisites

Table 9. Reading Readiness Levels and Success in GE Courses without Prerequisites

	All	Reading Readiness Level at Start of Term									
		RD 80		RD 90		RD 115		Successfully		No Basis	
		SC		SC		SC		SC		SC	
N	N	%	N	%	N	%	N	%	N	%	
Total Enrolled	116,476	1,370	70.5	5,104	70.2	10,215	76.3	43,324	81.7	33,395	81.7

Table 10. Reading Readiness Levels and Arts and Letters Subject Areas

	All	Reading Readiness Level at Start of Term									
		RD 80		RD 90		RD 115		Successfully Completed or Tested out of RD 115		No Basis for Level	
		SC		SC		SC		SC		SC	
N	N	%	N	%	N	%	N	%	N	%	
All Arts and Letters GE w/o Prereq	38,973	434	74.2	1,732	75.2	3,358	82.9	14,499	84.7	12,761	85.5
American Sign Language	566	6	66.7	29	80.6	53	81.5	169	81.6	208	83.5
Art	17,161	220	74.3	831	75.2	1,568	84.7	6,035	86	5,946	86.3
French	911	4	80	25	75.8	64	79	342	82	310	82.7
German	719	5	83.3	36	85.7	49	89.1	269	82.5	250	86.2
Humanities	226	4	80	4	57.1	24	80	80	80.8	80	94.1
Japanese	918	19	100	50	89.3	41	91.1	331	86	365	88.4
Music	2,552	25	64.1	119	76.8	223	86.4	1,054	87	758	85.3
Philosophy	6,800	38	67.9	237	72.9	541	83.4	2,782	82.5	1,983	82.7
Russian	496	4	100	27	96.4	32	88.9	212	91	179	91.8
Spanish	4,000	21	60	143	69.4	305	74.2	1,495	81.8	1,266	83.3
Speech	3,060	79	78.2	181	73.9	345	79.1	1,025	85.8	949	87.6
Theatre Arts	381	5	100	18	78.3	36	83.7	127	85.2	146	90.7
Welding	16	1	100	1	100	.	.	4	80	9	100
Writing	1,167	3	75	31	77.5	77	86.5	574	86.7	312	83.9

Table 11. Reading Readiness Levels and Social Science Subject Areas

	All	Reading Readiness Level at Start of Term									
		RD 80		RD 90		RD 115		Successfully Completed or Tested out of RD 115		No Basis for Level	
		SC		SC		SC		SC		SC	
		N	%	N	%	N	%	N	%	N	%
All Social Sciences GE w/o Prereq	62,577	749	68.8	2,836	68.2	5,626	73.9	23,271	80.5	16,538	79.5
Anthropology	3,243	24	66.7	89	70.1	221	75.7	1,147	81.4	1,141	82.7
Early Education and Family Studies	417	4	44.4	14	56	37	67.3	95	68.8	137	72.1
Economics	9,165	165	77.8	385	71	624	70.8	3,069	80.6	2,914	78.3
Geography	2,634	32	74.4	135	72.6	187	73.3	888	80.4	842	80.6
History	14,462	92	60.9	632	63	1,269	72.2	5,686	79.6	3,438	78.1
Political Science	4,278	25	51	160	59.9	264	63.6	1,526	72.9	1,080	74.2
Psychology	17,767	260	67.7	908	69.6	1,950	75.7	6,830	81.2	4,095	80.5
Sociology	9,518	141	72.7	466	72.7	965	78.5	3,599	84.1	2,602	81.9
Women s Studies	1,093	6	54.5	47	74.6	109	72.2	431	82.7	289	83.3

Table 12. Reading Readiness Levels and Science Subject Areas

	All	Reading Readiness Level at Start of Term									
		RD 80		RD 90		RD 115		Successfully Completed or Tested out of RD 115		No Basis for Level	
		SC		SC		SC		SC		SC	
		N	%	N	%	N	%	N	%	N	%
All Science GE w/o Prereq	14,926	187	69.5	536	66.1	1,231	71.2	5,554	79.6	4,096	79.7
Biology	6,351	78	62.4	211	58.8	599	68.9	2,404	78	1,471	76.7
Chemistry	1,086	22	78.6	51	71.8	86	78.2	412	83.1	335	87.9
Computer Information Systems	2,334	41	73.2	80	63.5	123	59.1	665	72.7	761	74
Computer Science	395	6	100	9	56.3	18	69.2	157	75.8	101	72.1
Environmental Studies (ESR)	596	2	33.3	19	70.4	41	75.9	236	81.9	187	84.6
General Science (GS)	1,469	8	61.5	76	79.2	146	76.4	605	81.8	353	82.3
Geology	1,616	15	88.2	48	75	134	78.4	643	85.4	527	86.3
Physics	1,079	15	83.3	42	80.8	84	83.2	432	87.1	361	87.6

Mathematics Readiness and Successful Completion of General Education Courses without Prerequisites

Table 13. Mathematics Readiness Levels and Success in General Education Courses without Prerequisites

	All	Mathematics Readiness Level at Start of Term															
		MTH 10		MTH 20		MTH 60/61		MTH 65		MTH 70/95		MTH 95		Successfully Completed or Tested out of MTH 95		No Basis for Level	
		SC		SC		SC		SC		SC		SC		SC		SC	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Total Enrolled in GE w/o Prereq	116,476	1,284	68.5	6,216	72.4	13,175	76.2	7,126	78.1	3,556	76.3	11,919	83	17,404	88.3	32,728	80.1

Table 14. Mathematics Readiness Levels and Arts and Letters Subject Areas

	All	Mathematics Readiness Level at Start of Term															
		MTH 10		MTH 20		MTH 60/61		MTH 65		MTH 70/95		MTH 95		Successfully Completed or Tested out of MTH 95		No Basis for Level	
		SC		SC		SC		SC		SC		SC		SC		SC	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
All Arts and Letters GE w/o Prereq	38,973	506	75.0	2,280	78.0	4,478	80.5	2,374	82.4	1,114	80.7	3,860	86.7	5,699	91.1	12,473	84.0
American Sign Language	566	8	72.7	36	85.7	73	76.0	31	88.6	13	76.5	48	84.2	41	83.7	215	83.0
Art	17,161	247	76.7	1,128	80.1	2,021	82.0	1,131	84.3	487	82.3	1,645	88.0	2,283	90.9	5,658	85.1
French	911	3	37.5	39	78.0	125	85.0	48	73.8	22	71.0	97	86.6	105	84.7	306	81.8
German	719	4	66.7	35	72.9	84	80.8	46	92.0	28	80.0	71	85.5	66	90.4	275	85.9
Humanities	226	2	100.0	12	63.2	13	61.9	13	92.9	4	57.1	32	86.5	46	93.9	70	90.9
Japanese	918	9	75.0	45	83.3	96	87.3	42	80.8	32	88.9	77	91.7	91	97.8	414	86.8
Music	2,552	41	77.4	161	78.9	308	82.8	154	85.6	72	79.1	265	89.2	436	94.8	742	82.9
Philosophy	6,800	60	75.9	277	73.5	699	78.1	363	78.7	201	76.4	762	84.1	1,239	90.8	1,980	80.7
Russian	496	10	90.9	34	89.5	68	88.3	25	92.6	24	92.3	36	97.3	52	91.2	205	91.9
Spanish	4,000	36	64.3	198	70.2	390	72.0	254	78.2	90	80.4	370	82.4	660	88.2	1,232	82.9
Speech	3,060	63	73.3	214	75.6	392	79.7	168	78.1	95	85.6	305	85.9	470	95.1	872	85.2
Theatre Arts	381	6	75.0	23	71.9	47	88.7	14	77.8	11	91.7	36	87.8	62	92.5	133	88.7
Welding	16	1	50.0	1	100.0	1	100.0			2	100.0	2	100.0			8	100.0
Writing	1,167	16	84.2	77	90.6	161	86.6	85	86.7	33	71.7	114	93.4	148	89.7	363	81.4

Table 15. Mathematics Readiness Levels and Social Science Subject Areas

	All	Mathematics Readiness Level at Start of Term															
		MTH 10		MTH 20		MTH 60/61		MTH 65		MTH 70/95		MTH 95		Successfully Completed or Tested out of MTH 95		No Basis for Level	
		SC		SC		SC		SC		SC		SC		SC		SC	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
All Social Science GE w/o Prereq	62,577	690	65.4	3,322	70.0	7,089	74.3	3,820	76.8	1,969	74.3	6,402	82.1	9,134	87.4	16,594	77.7
Anthropology	3,243	23	59.0	137	69.5	302	78.2	160	78.0	93	71.5	309	85.1	482	89.8	1,116	80.5
Early Education and Family Studies (HEC)	417	10	71.4	17	51.5	51	64.6	19	65.5	5	55.6	35	71.4	24	80.0	126	72.4
Economics	9,165	46	63.0	204	63.4	698	72.1	347	70.4	308	81.1	816	77.8	1,867	84.9	2,871	78.0
Geography	2,634	25	65.8	113	68.1	270	72.4	145	77.5	89	73.0	255	81.0	386	90.4	801	79.6
History	14,462	168	70.0	766	67.6	1,793	73.9	923	75.4	455	69.9	1,401	80.7	1,955	86.9	3,656	76.2
Political Science	4,278	32	59.3	165	58.7	416	64.7	231	65.3	123	67.6	353	75.9	587	83.5	1,148	71.9
Psychology	17,767	239	62.1	1,213	72.7	2,259	75.2	1,224	78.5	592	76.2	2,036	83.5	2,340	88.3	4,140	78.3
Sociology	9,518	131	70.1	650	75.5	1,163	78.2	697	83.8	282	76.0	1,082	86.6	1,305	89.6	2,463	80.1
Women s Studies	1,093	16	64.0	57	68.7	137	75.7	74	80.4	22	75.9	115	85.8	188	92.2	273	79.1

Table 16. Mathematics Readiness Levels and Science Subject Areas

	All	Mathematics Readiness Level at Start of Term															
		MTH 10		MTH 20		MTH 60/61		MTH 65		MTH 70/95		MTH 95		Successfully Completed or Tested out of MTH 95		No Basis for Level	
		SC		SC		SC		SC		SC		SC		SC		SC	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
All Science GE w/o Prereq	14,926	88	60.7	614	67.1	1,608	73.4	932	73.3	473	75.3	1,657	78.4	2,571	85.7	3,661	78.5
Biology	6,351	48	56.5	387	66.5	915	74.3	467	70.3	194	74.3	677	76.2	801	82.5	1,274	76.3
Chemistry	1,086	3	60.0	29	59.2	105	77.8	72	75.0	50	87.7	196	83.8	172	94.0	279	85.3
Computer Information Systems	2,334	6	54.5	42	57.5	171	63.3	128	68.8	67	64.4	228	71.5	327	78.0	701	73.6
Computer Science	395	2	66.7	3	75.0	14	70.0	5	100.0	23	71.9	42	67.7	81	80.2	121	72.0
Environmental Studies (ESR)	596	5	100.0	31	81.6	68	76.4	28	71.8	14	77.8	56	77.8	136	87.7	147	81.7
General Science (GS)	1,469	6	42.9	49	75.4	116	71.2	92	80.7	42	77.8	146	82.0	420	85.9	317	80.9
Geology	1,616	14	82.4	44	68.8	137	77.0	97	83.6	44	74.6	187	86.2	378	93.1	466	83.4
Physics	1,079	4	80.0	29	72.5	82	78.1	43	82.7	39	90.7	125	87.4	256	92.4	356	86.0