

## **Concurrent Enrollment Assessment Plan**

Prepared by:  
Stephen W. Brady  
Associate Professor of Mathematics and Statistics and  
Director, College Algebra Program

Universities recommend that any high school student who wishes to attend any university or college should take four years of mathematics in high school. Three years of mathematics should be minimal preparation. The first college level course in mathematics at any university in the world is Calculus. All other courses before Calculus are remedial whether or not credit is given for those courses. Wichita State University's general education basic skill requirements in mathematics for graduation came from the realization that most of our students did not enroll initially with have enough prior training in mathematics. Due to our previous open admission policy many were admitted with less than adequate mathematics background to be successful in college. The idea was to raise them to a college entry level of mathematics before they graduated from WSU by requiring knowledge of College Algebra (or higher level mathematics) as part of the general education program. Although this goal has been made much easier to attain due to the recent rule that the basic skills must be achieved in the first forty-eight hours of coursework, it is much better if the skills are achieved before entering college. Concurrent enrollment classes in mathematics in College Algebra, Trigonometry, and Pre-calculus using the "carrot" of college credit have encouraged students to take more mathematics while still in high school in order to raise their mathematical knowledge level closer to where it should be for college entry.

### **College Algebra**

For the last seventeen years the comprehensive departmental final for Math 111, College Algebra has been used as part of an overall assessment of the course. The final is worth at least 30% of the course grade for each section of M111. A student successfully satisfies the final assessment by scoring at least 50% on the final together with a C or better for the semester overall. The weight of 30% for the final brings the course grade down (in most cases) to the D or F level for anyone not achieving a score of at least 50% on the final exam. For courses taught as concurrent enrollment the same weight (30%) for the course grade will be used. If a high school has any mathematics concurrent enrollment class taught by a teacher who does not have a master's degree, all sections in the school use the same department final as that given by the university. In such cases, the assessment criteria are identical. When periodic overall assessments of the university courses are done, the concurrent enrollment classes will be included. Comparisons will be easy to draw concerning student learning outcomes in both environments and how closely concurrent enrollment classes mirror the university classes. In a high school whose mathematical concurrent enrollment classes are taught by teachers with master's degrees, the final does not have to be the same as the university final but the assessment and grading weight are the same. Finals that are different from the one given by the university are approved by the College Algebra Program Director. These classes will be included in any overall assessment of college algebra courses. Comparisons will be made between these classes, university classes, and those concurrent enrollment classes using the university final. The university's STPE assessment is used to assess each concurrent enrollment class to evaluate student perception of the instructor

and course. In addition, any high school assessment of student learning outcomes that is part of a concurrent enrollment course will be requested from the school and compared with our own assessments.

The prerequisites for university College Algebra classes are two years of high school algebra or equivalent and a satisfactory score on the department placement exam or math ACT exam or math SAT exam. Satisfactory scores have been determined to be 15 of 32 on the department placement exam, 20 for math ACT, and 480 for math SAT. The department placement exam, while not a post-assessment tool for College Algebra is an assessment tool for our remedial courses and for a student's previous mathematical preparation. Part of the way we can affect student learning outcomes in College Algebra is to make sure the student is (mathematically) ready to enroll in the course. The department feels that our remedial courses themselves have been excellent preparation. The placement exam is also working well. Most high school mathematics concurrent enrollment courses involve the second semester of a two semester sequence. In order to qualify for concurrent enrollment in such a course, an A or B is required in the first semester. So, a concurrent enrollment student shows they are ready for college credit by above average achievement in previous semesters.

College Algebra has the following overall course outcomes.

The student will understand the body of mathematical knowledge identified as College Algebra in order to:

1. Build a foundation for mathematical problem solving.
2. Apply problem-solving techniques to model both mathematical and real-world contexts.
3. Use mathematical language and symbols as a means of communication while reading, writing, speaking, and listening.
4. Apply critical thinking and analytical reasoning skills in mathematical settings.
5. Retrieve and utilize mathematical skills as opportunities arise.
6. Make connections between mathematical problem solving and its application in other settings.

These outcomes are part of a Course Syllabus that spells out in detail the sections to be covered in College Algebra, the time to be spent on each text section, and the outcomes for each text section. The university final exam is closely tied to these outcomes. Each university class section in College Algebra uses the same book and materials. Each concurrent enrollment section in each school district uses the same text. Although textbooks may be different from ours and differ from district to district, this is not a problem since texts used in the high schools are standard college level texts acceptable for our courses and cover the same material. The university course syllabus for College Algebra (together with the goals and outcomes) are distributed to the high school concurrent enrollment teachers as well as both sample finals and previous university course finals. Concurrent enrollment teachers are encouraged to utilize as much of this material as is possible. Two meetings (training sessions) have been held each year since 2006 with all the mathematics concurrent enrollment teachers. Course procedures, final exams, assessments, and curricula have been discussed at these meetings with the goal of tying the concurrent enrollment experience as closely as possible with the university course. Meetings with the concurrent

enrollment teachers will be conducted each fall for preparation for the spring concurrent enrollment classes. Meetings will be held in the spring to discuss the spring classes and finals.

A standing committee composed of experienced faculty oversees the university course contents, the textbook, the length of time to be spent on topics, etc. The mathematics portion of the basic skills requirement is overseen by a professor in the department of Mathematics and Statistics who carries the title of College Algebra Director. Concurrent enrollment mathematics courses and assessment will be overseen by the same Director. The overall rules governing College Algebra as concurrent enrollment will be the same as those for the university equivalent.

### **Trigonometry, Math 123 and Math 112, Pre-Calculus**

The College Algebra portion of Pre-calculus (a combination of Algebra and Trigonometry), M112, is considered to be equivalent to M111 and is an alternate path that can be used to satisfy the basic skills requirement. It is usually taken by those who have a need or desire to take higher level mathematics but who do not feel ready to take Calculus. Trigonometry at our university has College Algebra as a pre-requisite. Both courses have course syllabi with similar outcomes as those stated above for College Algebra. The classes are taught mostly by regular faculty with some classes taught occasionally by our more senior graduate teaching assistants. Each instructor gives their own final and is responsible for all aspects of the course. Finals for concurrent enrollment classes are submitted and approved by the College Algebra Program Director. Historically, the only assessment done is by the faculty teaching the course and by grade distributions. With respect to concurrent enrollment, all rules and goals governing the College Algebra course discussed above are the same for Trigonometry and Pre-calculus. Concurrent enrollment class assessments will be compared to our Instructor's assessments of their courses.

Spring 2008 Percentages with WSU Math 013 - 111 Grades

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
410	61	66	94	45	74	67	1	2

Passed with C or better: 221 = 54%

Final Test Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
410	31	53	55	74	126	68	1	2

Passed with C or better: 139 = 34%

Current Qualifying Placement Score	158	= 39%	Current Qualifying Place Score / Passed 111	100	= 63%
Current Qualifying ACT Score	126	= 31%	Current Qualifying ACT Score / Passed 111	67	= 53%
Beginning Algebra (previously)	94	= 23%	Took 011 here & Passed / Passed 111	34	= 36%
Intermediate Algebra (previously)	148	= 36%	Took 012 here & Passed / Passed 111	61	= 41%
Beg. & Int. Algebra (previously)	242	= 59%	Took 011 & 012 here & Passed / Passed 111	14	= 6%
Repeats	151	= 37%	Repeat here & Passed 111	48	= 32%
Authorizations	78	= 19%	Authorized & Passed 111	35	= 45%
Final Test 50% +	257	= 63%			
Final Test 0-49%	44	= 11%			
Final Test No show	40	= 10%			

Spring 2008 Percentages with Concurrent and WSU Math 013 - 111 Grades

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wtd	INC	Audit
590	135	141	119	47	74	71	1	2

Passed with C or better: 395 = 67%

Current Qualifying Placement Score	159	= 27%	Current Qualifying Place Score / Passed 111	101	= 64%
Current Qualifying ACT Score	193	= 33%	Current Qualifying ACT Score / Passed 111	132	= 68%
Authorizations	221	= 37%	Authorized & Passed 111	216	= 98%

Percentages with WSU Math 131 Grades

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wtd	INC	Audit
31	5	14	5	1	1	5	0	0

Passed with C or better: 24 = 77%

Current Qualifying Placement Score	8	= 26%	Current Qualifying Place Score / Passed 131	7	= 88%
Current Qualifying ACT Score	3	= 10%	Current Qualifying ACT Score / Passed 131	3	= 100%
Beginning Algebra (previouty)	16	= 52%	Took 011 here & Passed / Passed 131	8	= 50%
Intermediate Algebra (previosly)	14	= 45%	Took 012 here & Passed / Passed 131	8	= 57%
Beg. & Int. Algebra (previosly)	9	= 29%	Took 011 & 012 here & Passed / Passed 131	3	= 33%
Repeats	5	= 16%	Repeat here & Passed 131	1	= 20%
Authorizations	15	= 48%	Authorized & Passed 131	13	= 87%

Fall 2007 Percentages with WSU Math 013 - 111 Grades

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
576	93	129	113	37	128	76	0	0

Passed with C or better: 335 = 59%

Final Test Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
576	48	82	98	81	191	76	0	0

Passed with C or better: 228 = 40%

Current Qualifying Placement Score	113 = 20%	Current Qualifying Place Score / Passed 111	65 = 58%
Current Qualifying ACT Score	282 = 49%	Current Qualifying ACT Score / Passed 111	101 = 36%
Beginning Algebra (previously)	61 = 11%	Took 011 here & Passed / Passed 111	20 = 33%
Intermediate Algebra (previosly)	111 = 19%	Took 012 here & Passed / Passed 111	36 = 32%
Beg. & Int. Algebra (previously)	45 = 8%	Took 011 & 012 here & Passed / Passed 111	13 = 29%
Repeats	116 = 20%	Repeat here & Passed 111	44 = 38%
Authorizations	83 = 14%	Authorized & Passed 111	40 = 48%

Final Test 50% +	358 = 62%
Final Test 0-49%	61 = 11%
Final Test No show	81 = 14%

Summer 2007 Percentages with WSU Math 111 Grades

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
87	24	19	18	7	10	9	0	0

Passed with C or better: 61 = 70%

Final Test Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
87	26	18	13	7	14	9	0	0

Passed with C or better: 57 = 66%

Current Qualifying Placement Score	30 = 34%	Current Qualifying Place Score / Passed 111	23 = 77%
Current Qualifying ACT Score	25 = 29%	Current Qualifying ACT Score / Passed 111	20 = 80%
Beginning Algebra (previously)	21 = 24%	Took 011 here & Passed / Passed 111	6 = 29%
Intermediate Algebra (previously)	31 = 36%	Took 012 here & Passed / Passed 111	14 = 45%
Beg. & Int. Algebra (previously)	12 = 14%	Took 011 & 012 here & Passed / Passed 111	4 = 33%
Repeats	35 = 40%	Repeat here & Passed 111	21 = 60%
Authorizations	29 = 33%	Authorized & Passed 111	17 = 59%
Final Test 50% +	69 = 79%		
Final Test 0-49%	2 = 2%		
Final Test No show	7 = 8%		

Spring 2007 Percentages with WSU Math 013 - 111 Grades

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
425	63	77	84	35	96	70	0	0

Passed with C or better: 224 = 53%

Final Test Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
425	31	53	80	54	137	70	0	0

Passed with C or better: 164 = 39%

Current Qualifying Placement Score	148 = 35%	Current Qualifying Place Score / Passed 111	79 = 53%
Current Qualifying ACT Score	126 = 30%	Current Qualifying ACT Score / Passed 111	71 = 56%
Beginning Algebra (previously)	105 = 25%	Took 011 here & Passed / Passed 111	46 = 44%
Intermediate Algebra (previously)	147 = 35%	Took 012 here & Passed / Passed 111	44 = 30%
Beg. & Int. Algebra (previously)	64 = 15%	Took 011 & 012 here & Passed / Passed 111	12 = 19%
Repeats	156 = 37%	Repeat here & Passed 111	52 = 33%
Authorizations	106 = 30%	Authorized & Passed 111	49 = 46%

Final Test 50% + 228 = 54%

Final Test 0-49% 122 = 29%

Final Test No show 68 = 16%



Spring 2007 Percentages with Concurrent and WSU Math 013 - 111 Grades

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd
592	131	154	104	35	96	72

Passed with C or better: 389 = 66%

Current Qualifying Placement Score	146 = 25%	Current Qualifying Place Score / Passed 111	79 = 54%
Current Qualifying ACT Score	201 = 34%	Current Qualifying ACT Score / Passed 111	136 = 68%
Authorizations	181 = 31%	Authorized & Passed 111	123 = 68%

Percentages with WSU Math 131 Grades

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
41	9	14	7	0	6	5	0	0

Passed with C or better: 30 = 73%

Current Qualifying Placement Score	6 = 15%	Current Qualifying Place Score / Passed 131	6 = 100%
Current Qualifying ACT Score	4 = 10%	Current Qualifying ACT Score / Passed 131	1 = 25%
Beginning Algebra (previously)	20 = 49%	Took 011 here & Passed / Passed 131	7 = 35%
Intermediate Algebra (previously)	19 = 46%	Took 012 here & Passed / Passed 131	10 = 53%
Beg. & Int. Algebra (previously)	13 = 32%	Took 011 & 012 here & Passed / Passed 131	4 = 31%
Repeats	24 = 59%	Repeat here & Passed 131	12 = 50%
Authorizations	27 = 66%	Authorized & Passed 131	19 = 70%

Fall 2006 Percentages with WSU Math 013 - 111 Grades

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
589	81	105	107	81	104	109	1	1
Passed with C or better: 293								= 50%

Final Test Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
589	27	63	90	81	217	109	1	1
Passed with C or better: 180								= 31%

Current Qualifying Placement Score	4	= .6%	Current Qualifying Place Score / Passed 111	0	= 0%
Current Qualifying ACT Score	5	= .8%	Current Qualifying ACT Score / Passed 111	3	= 60%
Beginning Algebra (previously)	26	= 4%	Took 011 here & Passed / Passed 111	9	= 35%
Intermediate Algebra (previously)	44	= 7%	Took 012 here & Passed / Passed 111	18	= 41%
Beg. & Int. Algebra (previously)	11	= 2%	Took 011 & 012 here & Passed / Passed 111	3	= 27%
Repeats	28	= 5%	Repeat here & Passed 111	5	= 18%
Authorizations	110	= 17%	Authorized & Passed 111	43	= 39%

Final Test 50% + 315 = 53%

Final Test 0-49% 163 = 28%

Final Test No show 71 = 12%

Fall 2006 Percentages with Concurrent and WSU Math 013 - 111 Grades

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
622	89	123	112	82	104	109	2	1
Passed with C or better: 324								= 52%

Current Qualifying Placement Score	4	= .006%	Current Qualifying Place Score / Passed 111	0	= %
Current Qualifying ACT Score	34	= .05%	Current Qualifying ACT Score / Passed 111	30	= 88%
Authorizations	110	= 18%	Authorized & Passed 111	43	= 39%

Percentages with WSU Math 131 Grades

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC	Audit
36	10	7	7	3	8	1	0	0
Passed with C or better: 24								= 67%

Current Qualifying Placement Score	1	= .03%	Current Qualifying Place Score / Passed 131	1	= 100%
Current Qualifying ACT Score	0	= 0%	Current Qualifying ACT Score / Passed 131	0	= 0%
Beginning Algebra (previously)	10	= 28%	Took 011 here & Passed / Passed 131	5	= 50%
Intermediate Algebra (previously)	11	= 31%	Took 012 here & Passed / Passed 131	7	= 64%
Beg. & Int. Algebra (previously)	4	= 11%	Took 011 & 012 here & Passed / Passed 131	2	= 50%
Repeats	9	= 25%	Repeat here & Passed 131	2	= 22%
Authorizations	24	= 67%	Authorized & Passed 131	14	= 58%

Spring 2008 Concurrent Math 111

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC
181	74	75	25	2	0	5	0

Passed with C or better: 174

= 96%

Current Qualifying SAT Score	3	= 1.7%	Current Qualifying SAT Score / Passed 111	3	= 100%
Current Qualifying ACT Score	105	= 58%	Current Qualifying ACT Score / Passed 111	102	= 56%
Authorizations	144	= 80%	Authorized & Passed 111	138	= 76%

2 students listed twice: Vargas, Estefania and Olson, David I.

Fall 2007 Concurrent Math 111

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC
33	10	21	2	0	0	0	0

Passed with C or better: 33 = 100%

Current Qualifying Placement Score	32	= 97%	Current Qualifying Placement Score / Passed 111	32	= 100%
Current Qualifying ACT Score	8	= 24%	Current Qualifying ACT Score / Passed 111	8	= 100%

Spring 2007 Concurrent Math 111

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC
167	68	77	20	0	0	2	0

Passed with C or better: 165

= 99%

Current Qualifying ACT Score

101 = 60%

Current Qualifying ACT Score / Passed 111

99 = 98%

Authorizations

75 = 45%

Authorized & Passed 111

74 = 99%

ACT Score / Passed 111

33 = 100%

Fall 2006 Concurrent Math 111

Final Grade Distribution

# of Students	Grade A	Grade B	Grade C	Grade D	Grade F	Drp / Wd	INC
33	8	18	5	1	0	0	1

Passed with C or better: 31

= 94%

Current Qualifying ACT Score

33 = 100%

Current Qualifying ACT Score / Passed 111

33 = 100%