More than a Decade of Mandatory Placement at Iowa Central Community College

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Presentation Overview:

1. Brief history of mandatory placement at Iowa Central
2. Placement - Fall 2000 thru Spring 2014
3. Placement - Fall 2014 thru today
4. Comparisons of placement tools
5. How we “sell” ALEKS PPL
6. Wrap-up and Questions

1. Brief history of mandatory placement at Iowa Central

- Iowa Central is a small, rural community college in Fort Dodge, IA
- Roughly 5000 full and part time students, serving a 9 county area
- Prior to Fall 2000, advisors would suggest math courses appropriate to the skills of the student but were allowed to enroll in any course for which they met the prerequisite.
  - based upon high school GPA (self-reported) or based upon ACT/SAT/Compass scores.
- Starting Fall 2000, mandatory placement was put in place
- This was as much faculty driven as it was administration driven
- Students and Enrollment Services disliked mandatory placement
  - this caused issues with enforcement of mandatory placement guidelines
  - short-lived effect
- Immediate improvement in student success was seen.

2. Placement - Fall 2000 thru Spring 2014

Mandatory Placement Chart: Pre-2014

MATH SKIILS						
ASSET	COMPASS	ACT	SAT	ACCUPLACER	ITEDS (NPR-JR. YEAR)	COURSE PLACEMENT
23-37	P 0-33	0-15	200-360	20-48	1-55	Fundamentals of Math - MAT 045 *No Credit
38-45	P34-63 A 0-50	16-19	385-455	49-90	56-84	Elementary Algebra - MAT 063 *No Credit
46-48	P 64-100 or, A 51-100 or, C 0-50	20-23	475-530	91-103	85-89	Math For Liberal Arts-Mat 111 Finite Math-MAT 140 Statistics-MAT 156 Math for El. Teachers-MAT 117 Intermediate Algebra-MAT 102
49-55, Plus a "C" or above in Intermediate Alg.	C 51-100 or T 0-45, Plus a "C" or above in Intermediate Alg.	24-27, Plus a "C" or above in Intermediate Alg.	550-605, Plus a "C" or above in Intermediate Alg.	104-119, Plus a "C" or above in Intermediate Alg.	90-93, Plus a "C" or above in Intermediate Alg.	College Alg - MAT 120, Trig - MAT 130, College Alg & Trig - MAT 127, Bus Calc - MAT 165
49-55	T 46-100	28-36	620-800	104-119	94-99	Calculus I - MAT 210

The most used placement tool was Compass.

Validity Evidence for ACT Compass Placement Tests

Paul A. Westrick & Jeff Allen

Overall Predictive Strength, Median Logistic R

		Predictor set		
Course type	**Compass test**	**Compass**	**HSGPA**	**Compass & HSGPA**
English Composition 1	Writing Skills	0.31	0.57	0.62
Speech/ Rhetoric	Writing Skills	0.36	0.69	0.75
American History	Reading	0.40	0.69	0.80
Other History	Reading	0.47	0.67	0.81
Psychology	Reading	0.47	0.63	0.77
Sociology	Reading	0.54	0.60	0.77
Biology	Reading	0.57	0.79	0.92
Arithmetic Skills	Pre-Algebra	0.57	0.34	0.66
Elementary Algebra	Pre-Algebra	0.36	0.65	0.80
Intermediate Algebra	Algebra	0.47	0.66	0.84
College Algebra	Algebra	0.41	0.76	0.88
College Algebra	College Algebra	0.51	0.76	0.94

- Represents the relative predictive strength of Compass scores and HSGPA
- Validity Evidence for ACT Compass Placement Tests, Table 4.

3. Placement - Fall 2014 thru today

Transition from Compass/ACT/Accuplacer to ALEKS PPL

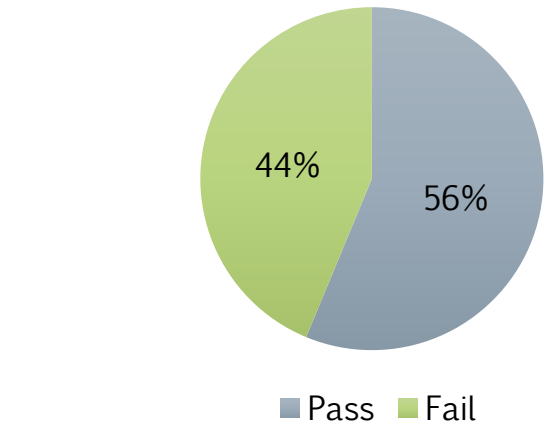
- Summer 2014, Iowa Central entered a pilot project with the ALEKS Corporation to use ALEKS PPL for placement.
  - Free use of ALEKS PPL for placement, which included 5 attempts and 6 months use of the Prep and Learning Modules
  - Placement cut-off scores provided by ALEKS
  - Enrollment for Fall 2014 started March 2014, so many students had already been placed using other placement tools
- As part of the pilot project, Iowa Central was required to submit results to the ALEKS Corporation which included: ALEKS score used for placement, enrolled course, and final grade in course
- The pilot project was part of a state-wide initiative to gather data concerning placement and success rates in math courses.
- Currently, Iowa State University, University of Northern Iowa, University of Iowa, Des Moines Area Community College, and Iowa Central Community College are the only public colleges which us ALEKS PPL for placement.
- https://www.aleks.com/about_aleks/overview

Mandatory Placement Chart (2014 – Present)

Percent Range	Course Placement
0% - 13%	MAT-045
14% - 29%	MAT-063
30% - 45%	MAT-102, MAT-111, MAT-117, MAT-140, MAT-156/157, MAT-165
46% - 75%	MAT-120, MAT-127
76% - 100%	MAT-210

MAT-045 – Fundamentals of Math
MAT-063 – Elementary Algebra
MAT-102 – Intermediate Algebra
MAT-111 – Math for Liberal Arts
MAT-117 – Math for Elementary Teachers
MAT-140 – Finite Math
MAT-156 – Statistics (3 credit hour)
MAT-157 – Statistics (4 credit hour)
MAT-165 – Business Calculus
MAT-120 – College Algebra
MAT-127 – College Algebra with Trig
MAT-210 – Calculus I

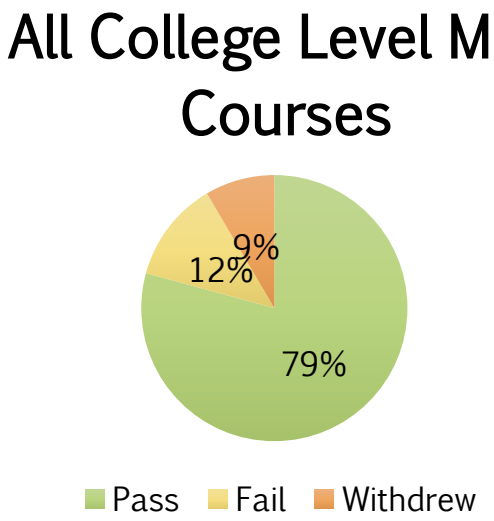
Success Rates: (Pre-ALEKS PPL)

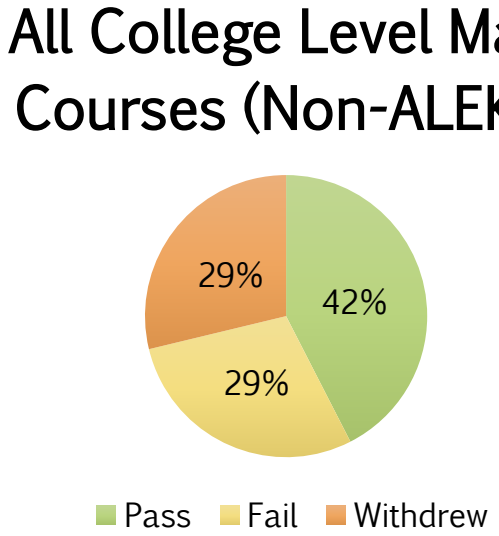


Pass = A, B, C
Fail = D, W, F

Note: Developmental Math Redesign started Fall 2012

Success Rates: ALEKS PPL vs other placement tools



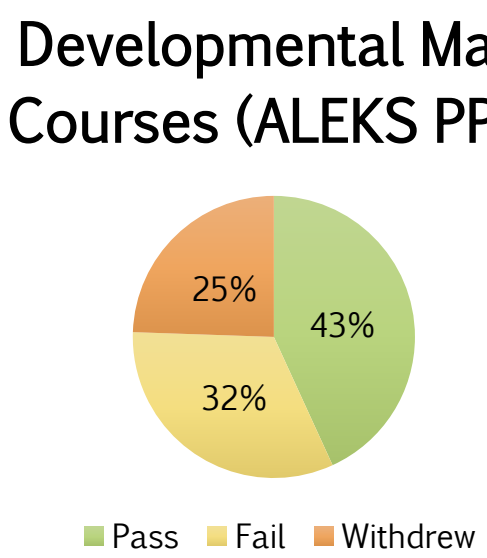


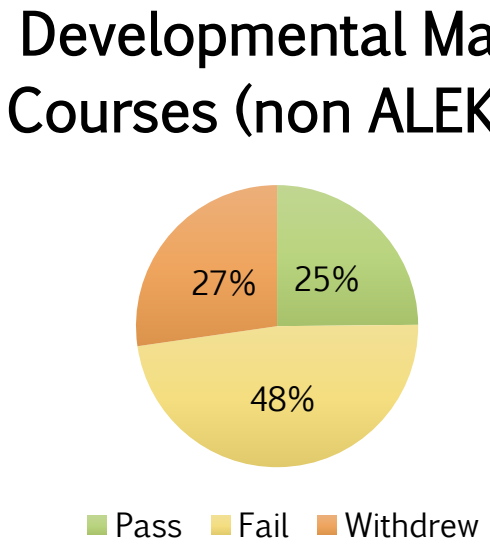
- Due to the late start in the pilot project, many students were placed using other placement tools

ALEKS PPL – n=236
non ALEKS – n=116

Pass = A,B,C,D
Fail = F,W
D is considered passing for MAT-111, MAT-140, MAT-156/157

Success Rates: ALEKS PPL vs other placement tools (cont.)



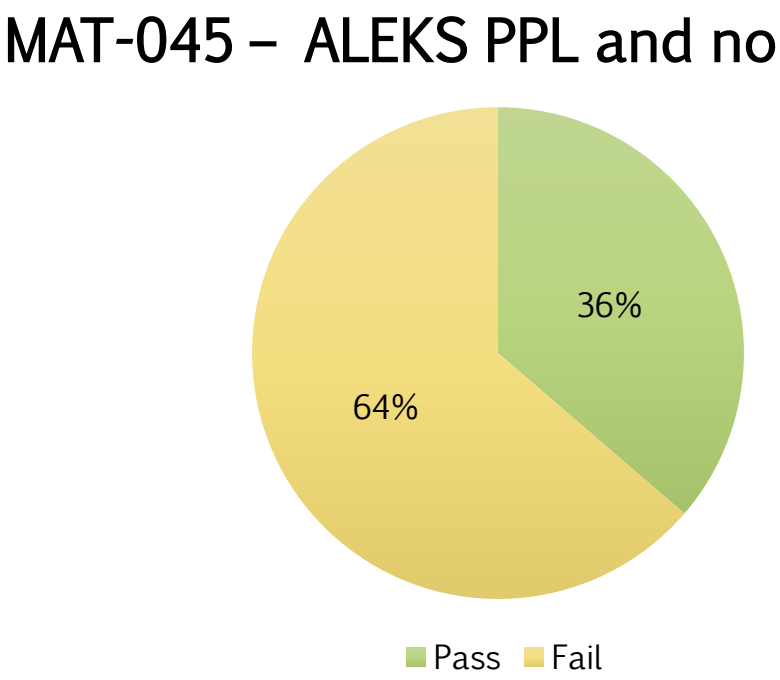


Note: 38% of the students who were placed with ALEKS PPL and withdrew from a developmental math course took ALEKS PPL again and placed in a higher level course.

ALEKS PPL – n=438
non ALEKS – n=368

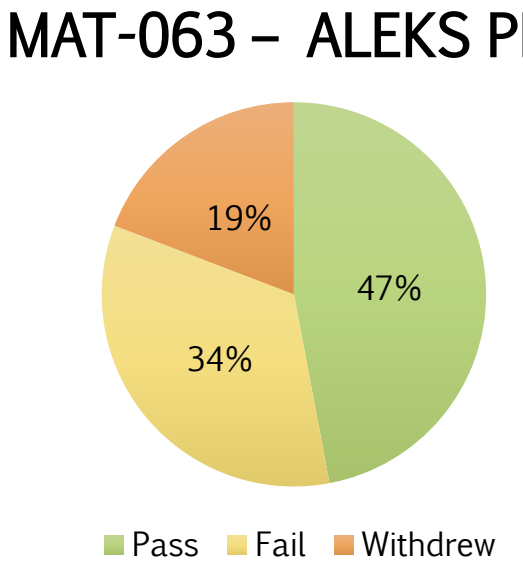
Pass = A,B,C
Fail = D,F,W

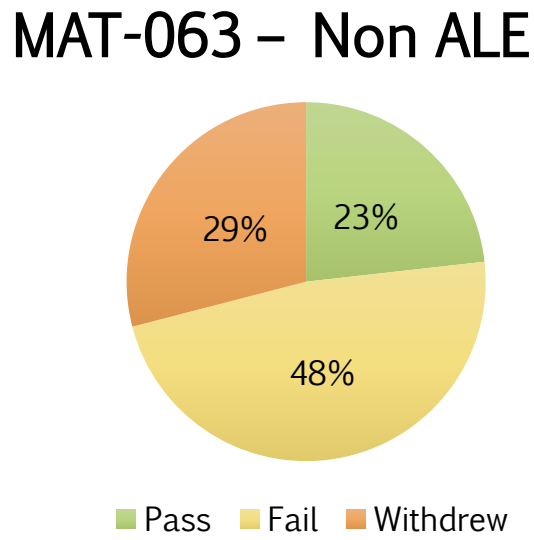
Success Rates: ALEKS PPL vs other placement tools (cont.)
Course by Course Analysis



n = 180
Pass = A,B,C
Fail = D,F,W

Success Rates: ALEKS PPL vs other placement tools (cont.)
Course by Course Analysis

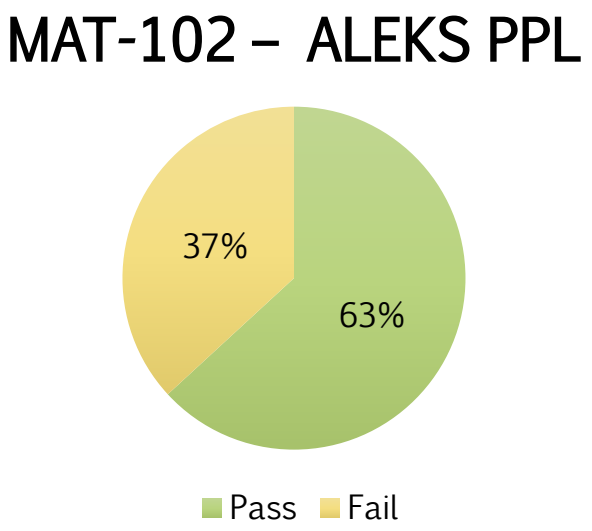


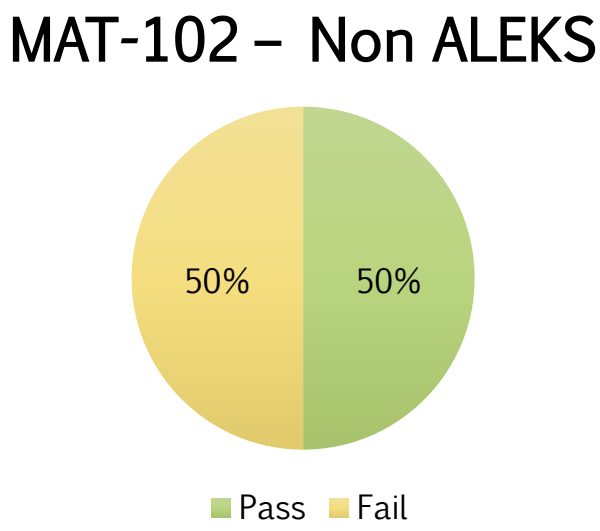


ALEKS PPL – n=319
non ALEKS – n=255

Pass = A,B,C
Fail = D,F,W

Success Rates: ALEKS PPL vs other placement tools (cont.)
Course by Course Analysis

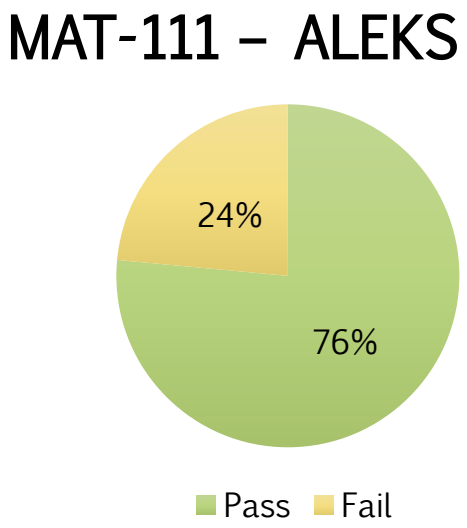


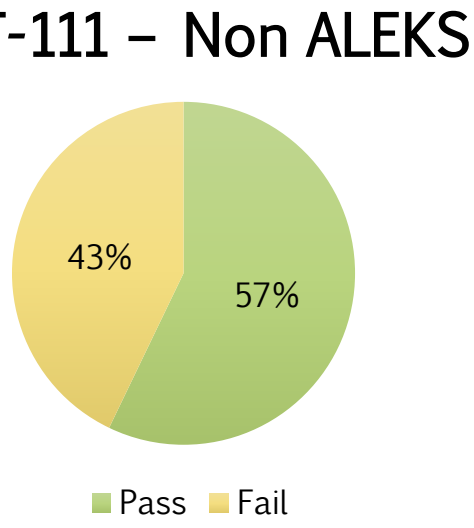


ALEKS PPL – n=29
non ALEKS – n=23

Pass = A,B,C
Fail = D,F,W

Success Rates: ALEKS PPL vs other placement tools (cont.)
Course by Course Analysis

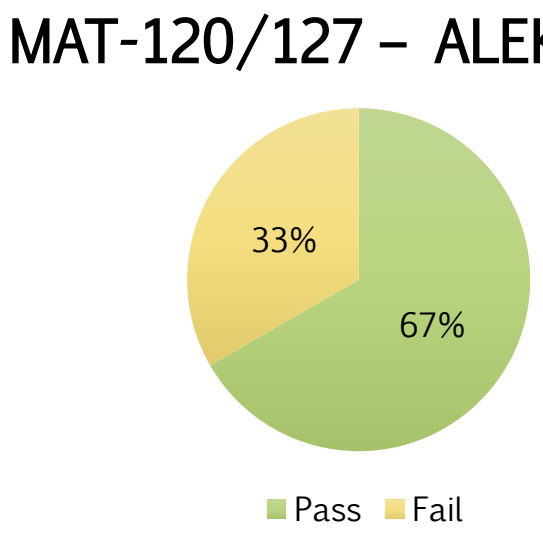


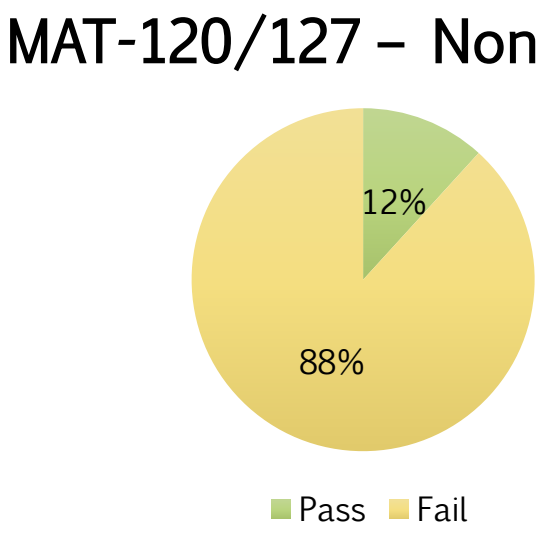


ALEKS PPL – n=57
non ALEKS – n=42

Pass = A,B,C,D
Fail = F,W

Success Rates: ALEKS PPL vs other placement tools (cont.)
Course by Course Analysis

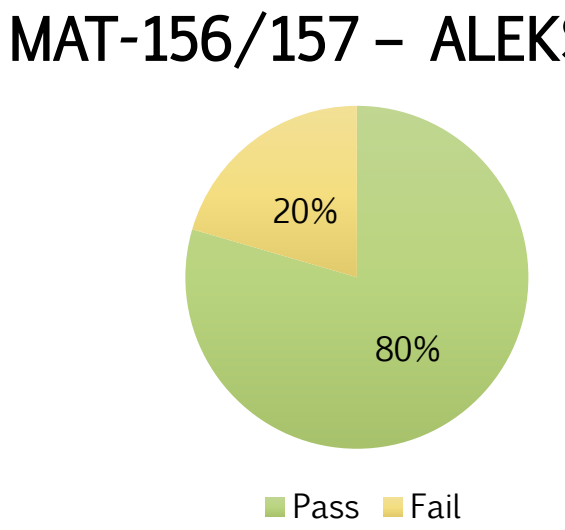


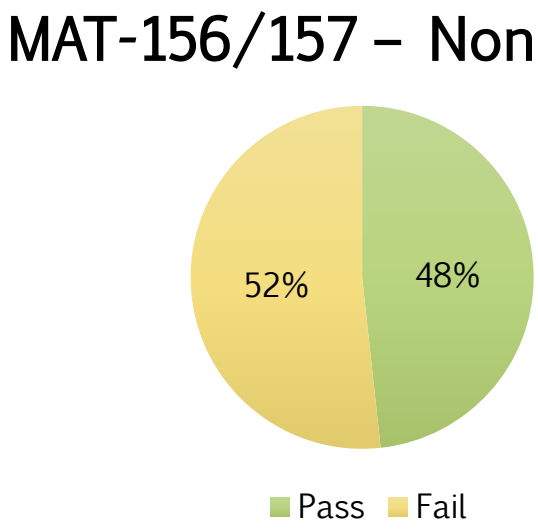


ALEKS PPL – n=35
non ALEKS – n=26

Pass = A,B,C
Fail = D,F,W

Success Rates: ALEKS PPL vs other placement tools (cont.)
Course by Course Analysis

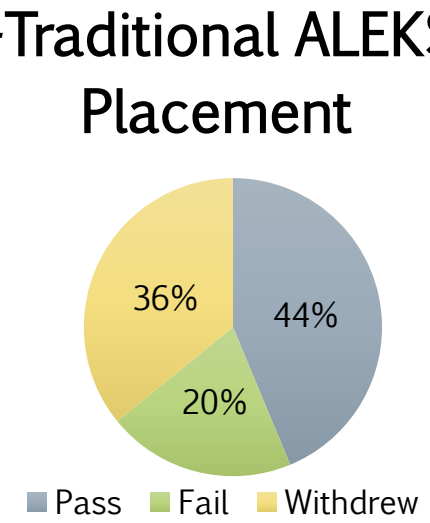


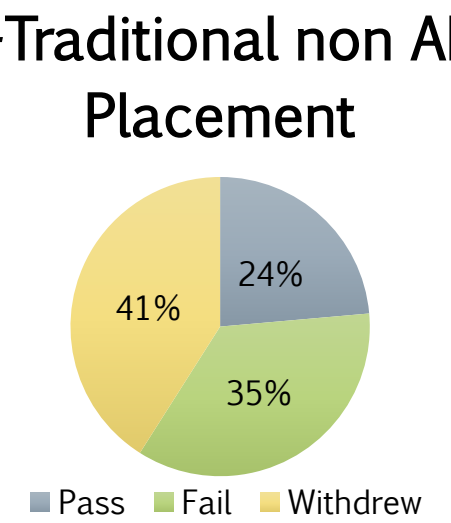


ALEKS PPL – n=104
non ALEKS – n=76

Pass = A,B,C,D
Fail = F,W

Success Rates: ALEKS PPL vs other placement tools (cont.) Nontraditional Students





ALEKS PPL – n=74
non ALEKS – n=56

Note: These results only include developmental math results.

4. Comparisons of placement tools

Proctored vs non Proctored placement:

- Compass/ACT/Accuplacer are all proctored placement tools
- ALEKS PPL can either be proctored or unproctored.
  - Iowa Central allows the first attempt to be either proctored or unproctored – if unproctored, it doesn't count for placement
  - After the first attempt, Iowa Central requires all subsequent attempts to be proctored.
  - Currently, Iowa Central is the only college in Iowa which requires a proctored assessment. ISU, UNI, U of I, and DMACC do not require a proctored assessment, though there is evidence some will move in that direction.

Length of average assessment attempt:

- Average for Compass – 13 minutes
- Average for ALEKS PPL – 73 minutes

4. Comparisons of placement tools (cont.)

Cost:

- Compass/Accuplacer
  - College covers the cost for the first two attempts. Students must pay for any further attempts
  - < $5. per attempt
- ALEKS PPL
  - College covers the cost for ALEKS PPL
  - $25 for 5 attempts and Prep and Learning Module
  - As of Feb. 1st, 2016, our cost is $20 per student
    - The reduced cost is as a result of number of students at ISU, UNI, U of I, DMACC, and ICCC using ALEKS PP. We could see the cost drop to $15 per student if a few more community colleges adopt ALEKS PPL.

4. Comparisons of placement tools (cont.)

Diagnostic Tools:

- Compass/Accuplacer
  - Only a raw score is obtained. More information can be gathered, but not included with initial score
- ALEKS PPL
  - A raw score along with a chart indicating strengths and weaknesses

Placement Results

Placement Assessment	Placement Results	Start Date	Start Time	End Date	End Time	Time in Placement (in hours)	Proctored Assessment
3	46 %	08/31/2015	12:50 PM	08/31/2015	01:58 PM	1.1	Yes/Complete
2	42 %	08/26/2015	04:05 PM	08/26/2015	05:11 PM	1.1	Yes/Complete
1	32 %	08/24/2015	04:33 PM	08/24/2015	05:41 PM	1.1	Yes/Complete

Hide mastery per slice

Placement Assessment	Placement Results	Knowledge per slice										
		Whole Numbers, Fractions, and Decimals (37 topics)	Percents, Proportions, and Geometry (32 topics)	Signed Numbers, Linear Equations and Inequalities (53 topics)	Lines and Systems of Linear Equations (27 topics)	Relations and Functions (22 topics)	Integer Exponents and Factoring (30 topics)	Quadratic and Polynomial Functions (21 topics)	Rational Expressions and Functions (23 topics)	Radicals and Rational Exponents (20 topics)	Exponentials and Logarithms (20 topics)	Trigonometry (29 topics)
3	46 %	97 %	72 %	79 %	56 %	23 %	47 %	5 %	9 %	25 %	0 %	3 %
2	42 %	97 %	72 %	74 %	41 %	23 %	40 %	5 %	9 %	15 %	0 %	0 %
1	32 %	97 %	59 %	60 %	19 %	9 %	10 %	0 %	4 %	5 %	0 %	0 %

Sample Report for student

ALEKS® Instructor Module

Good Afternoon, Mr. John Hansen

CMA, Summer/Fall 2015

Report for [redacted]

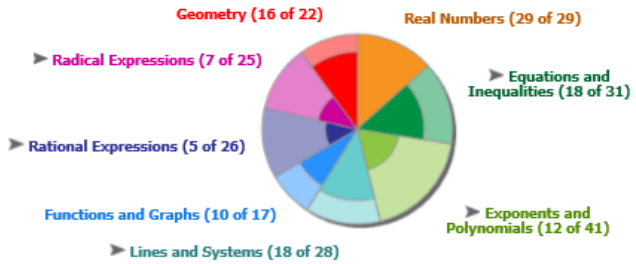
Last login:	08/31/2015		
Enroll date:	08/24/2015	**Hours/week:**	10.2
Total Hours:	10 Hours 12 minutes		

Report for [redacted]

CMA, Summer/Fall 2015 (Placement)

08/31/2015 (10:47) (last login date) Learning

Prep and Learning Pie
Mastery
(115 of 219 topics)



What [redacted] **Can Do**

Real Numbers

Percents and Proportions
- Applying the percent equation
- Finding the original price given the sale price and percent discount
- Finding simple interest without a calculator

Signed Numbers
- Exponents and signed fractions

Properties of Real Numbers
- Identifying numbers as rational or irrational

tions and ıalities

Linear Equations
- Solving a two-step equation with signed fractions
- Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
- Algebraic symbol manipulation: Problem type 1
- Translating a phrase into a two-step expression
- Solving a word problem with two unknowns using a linear equation

Linear Inequalities
- Solving a linear inequality: Problem type 3

Absolute Value Equations and Inequalities
- Solving an absolute value equation of the form a|x| = b or |x|+a = b

nents and ıomials

Properties of Exponents
- Evaluating an expression with a negative exponent: Positive fraction base
- Introduction to the power rules of exponents

Scientific Notation
- Scientific notation with negative exponent

Polynomial Expressions
- Combining like terms: Advanced
- Simplifying a sum or difference of two univariate polynomials
- Multiplying a univariate polynomial by a monomial with a positive coefficient

Factoring
- Greatest common factor of two multivariate monomials
- Factoring a quadratic with leading coefficient 1

and Systems

Ordered Pairs
- Determining whether given points lie on one, both, or neither of 2 lines given equations

Graphing Lines
- Graphing a line given its equation in standard form
- Graphing a line through a given point with a given slope

Equations of Lines
- Writing the equation of a line given the slope and a point on the line
- Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C

Graphing Linear Inequalities
- Graphing a linear inequality in the plane: Vertical or horizontal line
- Graphing a linear inequality in the plane: Slope-intercept form

Systems of Linear Equations
- Solving a system of linear equations using substitution

tions and Graphs

Sets, Relations, and Functions
- Union and intersection of finite sets
- Set builder and interval notation
- Identifying functions from relations
- Vertical line test
- Evaluating functions: Absolute value, rational, radical
- Domain and range from ordered pairs

Graphs and Transformations
- Finding intercepts of a nonlinear function given its graph
- Writing an equation for a function after a vertical translation
- Translating the graph of a function: One step

nal Expressions

Rational Expressions
- Complex fraction without variables: Problem type 2

Rational Equations
Solving a rational equation that simplifies to linear: Denominator x+a
Variation
Word problem on direct variation

Radical Expressions
Radical Expressions
Square root of a rational perfect square
Square root of a perfect square monomial
Rational Exponents
Rational exponents: Non-unit fraction exponent with a whole number base
Radical Equations
Solving a radical equation that simplifies to a linear equation: Two radicals

Geometry
Perimeter, Area, and Volume
Finding a side length given the perimeter and side lengths with variables
Area of a parallelogram
Area of a triangle
Perimeter involving rectangles and circles
Surface area of a cube or a rectangular prism
Similar polygons
Angles
Solving equations involving vertical angles
Coordinate Geometry
Pythagorean Theorem

and many other more elementary topics.

What [redacted] is Ready to Learn Next

Equations and Inequalities
Linear Equations
Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
Solving equations with zero, one, or infinitely many solutions
Algebraic symbol manipulation: Problem type 2
Solving a decimal word problem using a linear equation of the form Ax + B = C
Linear Inequalities
Solving a linear inequality: Problem type 4
Solving a compound linear inequality: Graph solution, basic
Absolute Value Equations and Inequalities
Solving an absolute value equation of the form |ax+b| = c

Exponents and Polynomials
Properties of Exponents
Evaluating an expression with a negative exponent: Negative integer base
Product rule with positive exponents: Multivariate
Quotient of expressions involving exponents
Polynomial Expressions
Multiplying conjugate binomials: Univariate
Squaring a binomial: Univariate
Factoring
Factoring out a monomial from a polynomial: Univariate
Factoring a quadratic with leading coefficient greater than 1
Quadratic Equations
Solving an equation written in factored form
Finding the roots of a quadratic equation with leading coefficient 1
Completing the square

Lines and Systems
Equations of Lines
Finding x- and y-intercepts of a line given the equation: Advanced
Writing an equation of a line given the y-intercept and another point
Systems of Linear Equations
Graphically solving a system of linear equations
Solving a system of linear equations using elimination with multiplication and addition
Solving a word problem involving a sum and another basic relationship using a system of linear equations

Rational Expressions
Rational Expressions
Adding rational expressions with common denominators and binomial numerators

Radical Expressions
Radical Expressions
Square root multiplication: Advanced

History

	Last Assessment	Assessment performance Course Mastery Show: Percent / Topics	Learning Data Since Last Assessment Topics Learned Since Last Assessment	Hours in ALEKS Since Last Assessment	Topics Learned per Hour Since Last Assessment
Progress Assessment	08/28/2015	44 +9 %	-	-	-
Initial Assessment	08/24/2015	21 +23 %	-	-	-
Initial Assessment	08/31/2015		-	-	-
Initial Assessment	08/26/2015		-	-	-
Initial Assessment	08/24/2015		-	-	-

Legend: Content mastered based on the assessment ( ), Progress made in Learning Mode ( ),
Content that is not yet mastered ( ), assessment not completed ( ), Not assessed in this course (/Hide these assessments)
Currently Viewing ( )

4. Comparisons of placement tools (cont.)

Prep and Learning Modules:

- Compass/Accuplacer
  - Compass/Accuplacer have study modules which can be purchased by the student. They are designed to help students prepare for taking the placement exam.
- ALEKS PPL
  - Once a student takes their first attempt, a Prep and Learning module is created based upon the students skill level (strengths and weakness in 314 mathematical topics or 16 different mathematical areas).
  - Our data suggests that students who spend 5 or more hours in their Prep and Learning Module will place into the next level.
    - Fall 2015, 92 students spent 5 or more hours in their Prep and Learning Module and placed in the next level math course. Of those, 92 students, 53 (58%) where successful in that course. This resulted in a savings of over $33,000 in tuition.

5. How we “sell” ALEKS PPL

SAVE TIME and MONEY with the ALEKS Assessment

What is ALEKS?

ALEKS is an “assessment,” NOT A TEST. Iowa Central requires all incoming students to take an assessment to determine what you know. At the end of the ALEKS Placement Assessment, you will have a much better sense of your strengths and weaknesses in math. You will then have a chance to work on those weaknesses. There is really no penalty for incorrectly answering a question on the assessment. The most important thing is that you take the assessment seriously and give it an honest effort so that the assessment truly reflects your level of knowledge and math preparedness.

Each math course costs over $600.

Almost every college degree requires at least one college level math course. If you are placed in a course that is too easy, you waste time by taking a series of prerequisite courses you don’t need. If you are placed in a course that is too hard, you are more likely to fail the course and need to repeat it, there by possibly delaying progress towards your degree. To that end, proper placement in a math course has the potential of saving both time and money.

5. How we “sell” ALEKS PPL (cont.)

Can I retake the ALEKS Placement Assessment?

Yes, you may take up to 4 placement assessments. However, to make each attempt worthwhile, it is important that you spend time working in your ALEKS Prep and Learning Module in between placement assessments so that you can improve your skills.

Can I retake the ALEKS Placement Assessment immediately?

No, you must wait 24 hours between the first and second placement attempts. After the second attempt, you must complete a minimum of 5 hours in the Prep and Learning module between each attempt. There is generally no benefit to re-taking the assessment immediately after completing a prior attempt. Unlike the SAT or ACT, you cannot improve your results by simply re-taking the assessment without spending time in the Prep and Learning Module to refresh material that you may have forgotten or to learn new material.

Must I work in my ALEKS Prep and Learning Module between placement assessments?

Yes, for 5 hours between each attempt after the second.

Are placement assessments timed?

No, you are free to complete the assessment at your own pace.

5. How we "sell" ALEKS PPL (cont.)

How long will a placement assessment take to complete?

Placement assessments require approximately 90 minutes to complete, but the amount of time will vary by student. There will be a maximum of 30 questions and no time limit on the assessment.

May I use a calculator while using ALEKS?

ALEKS will provide an on-screen calculator if you need one to complete a particular problem. Otherwise, you may not use a calculator.

May I use any other resources during a placement assessment?

You may only use a pen or pencil, paper, and the resources provided by ALEKS. You may not receive assistance from friends, family, other websites, textbooks, or any other resource not provided by ALEKS. Using outside resources may lead to improper placement and ultimately course failure.

Can I practice using ALEKS before I begin placement?

ALEKS will begin with a brief tutorial before your placement begins.

5. How we "sell" ALEKS PPL (cont.)

How long do I have access to my Prep and Learning Module?

You will have six months of access from the time that you start using your *ALEKS Prep and Learning Module*.

Is there an additional fee for my *Prep and Learning Module*?

Access to a *Prep and Learning Module* is included along with up to 5 placement assessments.

What are ALEKS Progress Assessments?

While working in a *Prep and Learning Module*, you will periodically complete progress assessments to solidify your gains in knowledge.

Does progress in an *ALEKS Prep and Learning Module* count toward placement?

No, you must complete a new placement assessment to change your placement result. Click on the placement tab on the upper right of the page from within ALEKS. Only your placement assessment results will be used for course placement.

5. How we "sell" ALEKS PPL(cont.)

Importance of Placement for Undecided, Humanities, Fine Arts, Social Sciences, etc.

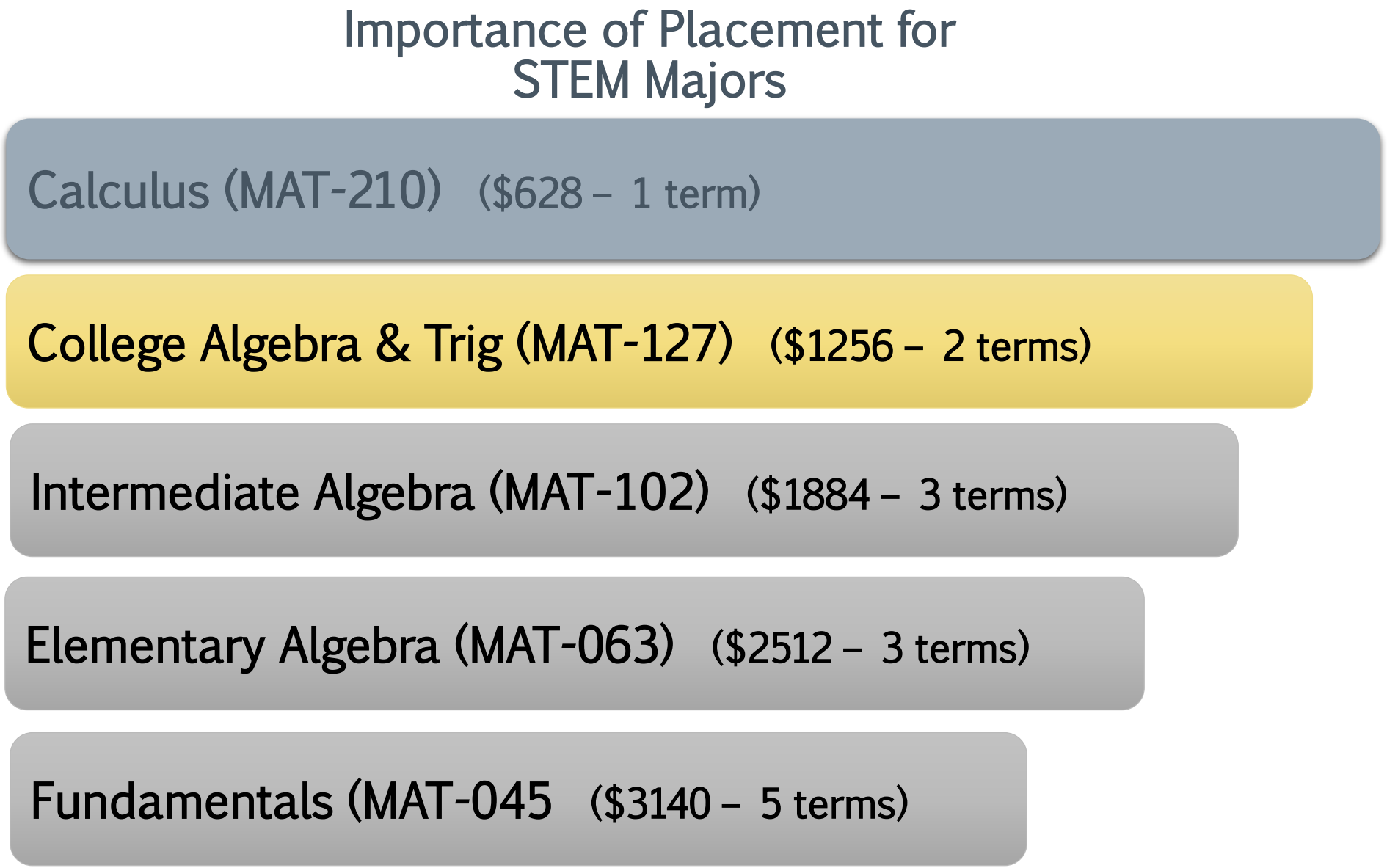
Degree Requires 1 of these math courses ($628 – 1 term)

- Math for Liberal Arts (MAT-111)
- Finite Math (MAT-140)
- Statistics (MAT-157)

Elementary Algebra (MAT-063) ($1256 – 2 terms)

Fundamentals (MAT-045) ($1884 – 3 terms)

5. How we "sell" ALEKS PPL(cont.)



6. Wrap-up and Questions

- We are finishing up our second year of ALEKS PPL placement.
- Fall 2015 data is inline with Fall 2014-Spring 2015 data.
- Enrollment Services is more comfortable with ALEKS PPL.
- State-wide initiative for mandatory placement using ALEKS PPL should go to the state legislature for the 2017 session. Data used comes from ISU, UNI, U of I, and Iowa Central.
  - Hopes are that the state of Iowa will pay for placement.
- ALEKS PPL has improved our developmental math results.
- Implementing ALEKS PPL and our Math Redesign has been a struggle – change is hard, not just for students, but for faculty and staff.

6. Wrap-up and Questions (cont.)

- We are in the process of looking at using an ALEKS PPL placement score to develop a course for the student.
  - This is in the very early stages
- We have had a lot of inquires from other community colleges in Iowa, Illinois, and Michigan along with four-year colleges from around the country wanting to see Iowa Central's data.
- Questions…

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