ADAPTIVE LEARNING PLUS REAL TIME ANALYTICS = SUCCESSFUL TRANSFORMATION:
GPC'S WORK WITH MCGRAW HILL'S ALEKS

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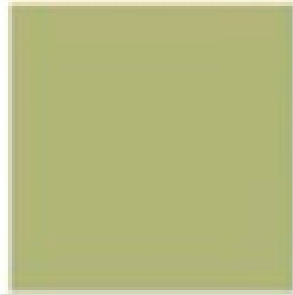
Georgia Perimeter College

December 12, 2014

22 years teaching mathematics

13 years teaching online

6 years purely online

3 years with ALEKS

Georgia Perimeter College

MY EXPERIENCES

Used web-based technology in my classes since 2001

Required online homework/testing

Course was the same for all students

Used systems with Mastery approach
    (get x% to move on to next assignment)

System was flawed
    (advanced/weak students)

WHAT PROMPTED OUR CHANGE

Redesign

Rethink

WHAT WOULD YOUR COURSE LOOK LIKE?

1. To diagnose deficiencies of students and provide just in time remediation
2. To have individualized learning paths for students
3. To provide accountability for retaining material
4. To ensure students have the necessary prerequisites to move on
5. To have consistency across delivery method (online and f2f)
6. To provide easy transition for repeating students

WHY WE CHOSE ALEKS

1. Reporting tools in ALEKS
2. Individualized learning path and accountability for prerequisite topics
3. Initial assessment/ automatic reassessments (30 questions or less)
4. Presents topics when students are ready to learn
5. Very easy to set up and use from instructor side

CONTINUED

6. Easy for students to continue where they left off if they have to repeat – don't have to repeat topics they had already completed

7. More difficult for students to game the system

8. Instructors free to focus on teaching and developing students

9. McGraw-Hill/ALEKS support

10. Down time in ALEKS virtually non-existent
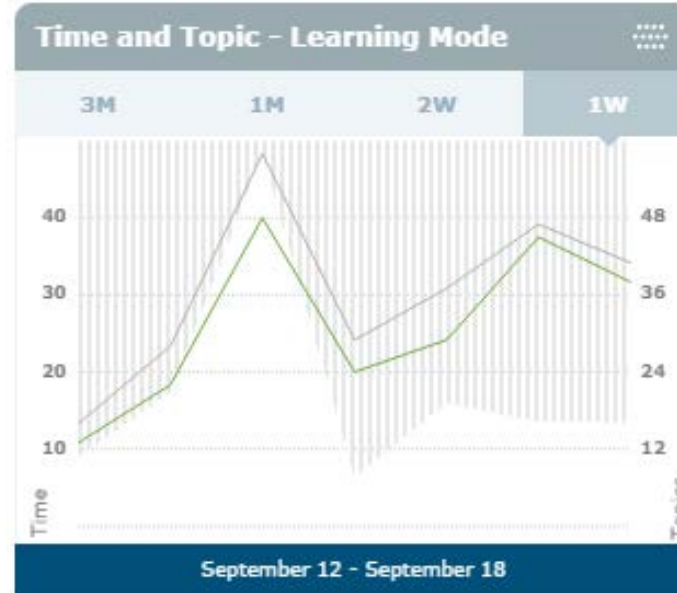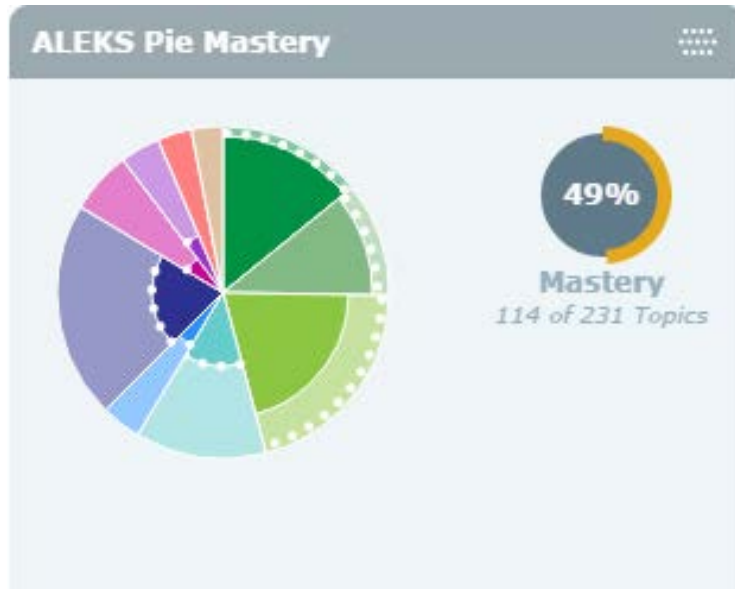
OVERVIEW OF ALEKS

Content represented by a Pie

Assessments – Initial, Automatic, and Scheduled

Can align with textbook and use printed resources

Can assign due dates to chunks of material or assign mastery level

Students presented topics when they are ready to learn

REAL TIME ANALYTICS

ALEKS Pie Mastery

49%

Mastery
114 of 231 Topics

Time and Topic – Learning Mode

| 3M | 1M | 2W | 1W |

40
30
20
10

48
36
24
12

Time
Topics

September 12 – September 18

Ready to Learn

Understanding the product rule of exponents	74% >
Restriction on a variable in a denominator: Linear	65% >
Simplifying a ratio of factored polynomials: Linear factors	65% >
Evaluating expressions with exponents of zero	65% >

102 +16 / 231 topics   33 / 38 topics

127 +7 / 231 topics   38 / 38 topics

44 +23 / 231 topics   10 / 38 topics

81 +108 / 231 topics   38 / 38 topics

96 +13 / 231 topics   30 / 38 topics

91 +32 / 231 topics   38 / 38 topics

105 +21 / 231 topics   38 / 38 topics

117 +4 / 231 topics   21 / 38 topics

ALEKS PIE REPORT BY OBJECTIVE AFTER 2 WEEKS OF SEMESTER

Last login	ule 1 (01-26-	ule 2 (02-02-2	dule 3 (02-09-2	ule 4 (02-16-2	le 5 (02-23-	ule 6 (03-02-	ule 7 (03-16-	ule 8 (03-30-2	dule 9 (04-13-20	ule 10 (04-27-2
01/23/2014	22/22	25/29	11/25	5/29	3/29	7/28	3/26	0/24	2/29	0/19
01/23/2014	9/22	10/29	8/25	1/29	1/29	0/28	0/26	0/24	1/29	0/19
01/24/2014	21/22	15/29	8/25	3/29	2/29	1/28	0/26	1/24	1/29	0/19
01/13/2014	22/22	29/29	25/25	23/29	15/29	21/28	20/26	14/24	17/29	8/19
01/24/2014	22/22	20/29	12/25	2/29	2/29	1/28	1/26	0/24	1/29	0/19
01/24/2014	22/22	29/29	25/25	11/29	11/29	8/28	3/26	0/24	1/29	1/19
01/24/2014	22/22	29/29	25/25	16/29	7/29	10/28	3/26	5/24	11/29	0/19
01/23/2014	22/22	25/29	17/25	10/29	5/29	7/28	7/26	0/24	3/29	2/19
01/23/2014	22/22	29/29	25/25	7/29	3/29	1/28	1/26	0/24	1/29	0/19
01/22/2014	22/22	29/29	25/25	8/29	5/29	3/28	1/26	0/24	2/29	0/19
01/24/2014	22/22	29/29	25/25	18/29	5/29	2/28	2/26	0/24	3/29	1/19
01/23/2014	22/22	29/29	25/25	29/29	19/29	1/28	2/26	0/24	1/29	2/19
01/23/2014	7/22	15/29	8/25	2/29	4/29	1/28	0/26	0/24	1/29	1/19
01/24/2014	22/22	29/29	25/25	27/29	16/29	2/28	1/26	1/24	1/29	2/19
01/24/2014	22/22	29/29	9/25	4/29	4/29	0/28	0/26	0/24	1/29	0/19
01/24/2014	22/22	29/29	25/25	22/29	16/29	23/28	26/26	17/24	22/29	5/19
01/21/2014	20/22	22/29	11/25	4/29	1/29	2/28	1/26	0/24	1/29	0/19
01/24/2014	22/22	29/29	25/25	29/29	25/29	22/28	22/26	15/24	17/29	10/19
01/23/2014	22/22	29/29	25/25	28/29	27/29	27/28	24/26	23/24	25/29	13/19
01/24/2014	19/22	14/29	7/25	2/29	1/29	0/28	0/26	0/24	1/29	0/19
01/24/2014	13/22	1/29	4/25	2/29	0/29	0/28	0/26	0/24	1/29	0/19
01/23/2014	22/22	29/29	25/25	21/29	9/29	9/28	2/26	4/24	4/29	1/19
01/22/2014	17/22	17/29	7/25	1/29	3/29	0/28	0/26	0/24	1/29	0/19
01/22/2014	22/22	28/29	23/25	12/29	12/29	16/28	2/26	2/24	2/29	1/19
01/19/2014	21/22	29/29	25/25	27/29	20/29	22/28	22/26	18/24	19/29	7/19

ALEKS PIE REPORT BY TOPIC

Module 4 (Current Objective)   **50% Mastered**

	Mastered	Not Mastered	Ready to Learn
Introduction to algebraic symbol manipulation	82%	18%	14%
Algebraic symbol manipulation: Problem type 1	41%	59%	32%

13 students out of 22 (59%) have not mastered this topic.

- Alexander, Rommecia C.
- Booker, Jasmire
- Burton, Jessica L.
- Cooper, Breyanla L.
- Crismon, Cassie L.
- Hughes, Sweetie
- James, Mike A.
- Jenkins, Cori
- Kolenky, Edwina T.
- Rumph, Samaria J.
- Sanchez, Latifa
- Taylor, Kevin D.

Send message to these students

	Mastered	Not Mastered	Ready to Learn
Finding a side length given the perimeter and side lengths with variables	32%	68%	32%
Finding the side length of a rectangle given its perimeter or area	86%	14%	9%
Finding the perimeter or area of a rectangle given one of these values	23%	77%	50%
Solving equations involving vertical angles and linear pairs	27%	73%	27%
Finding an angle measure of a triangle given two angles	82%	18%	18%
Finding a percentage of a whole number without a calculator: Basic	95%	5%	5%
Finding the sale price without a calculator given the original price and percent discount	73%	27%	23%
Finding the original price given the sale price and percent discount	36%	64%	27%
Computations from a circle graph	55%	45%	36%
Solving a percent mixture problem using a linear equation	9%	91%	18%
Finding the value for a new score that will yield a given mean	73%	27%	18%
Translating a sentence by using an inequality symbol	91%	9%	9%

TIME AND TOPIC

All	Student Id (Login|Name)	Total time in this course (hrs)	Last login	Total Time (for date range)	Mon 10/07	Tue 10/08	Wed 10/09	Thu 10/10	Fri 10/11	Sat 10/12	Sun 10/13	Week Total 10/07-10/13	Month Total 10/07-10/13
1	900850428	81h 14m	12/02/2013	5h 54m (14/27)	-	1h 33m (3/6)	2h 00m (6/9)	37m (0/1)	33m (1/2)	1h 11m (4/9)	-	5h 54m (14/27)	5h 54m (14/27)
2	900847672	100h 34m	10/24/2013	8h 40m (4/5)	2h 01m (2/3)	3h 23m (2/2)	0m (0/0)	3h 14m (0/0)	3m (0/0)	-	-	8h 40m (4/5)	8h 40m (4/5)
3	900844994	103h 16m	12/02/2013	10h 21m (12/14)	5h 17m (12/14)	-	-	-	-	-	5h 04m (0/0)	10h 21m (12/14)	10h 21m (12/14)
4	900836426	97h 34m	12/04/2013	2h 06m (3/8)	-	-	-	-	15m (1/3)	21m (1/3)	1h 30m (1/2)	2h 06m (3/8)	2h 06m (3/8)
5	900835103	26h 28m	11/10/2013	1h 38m (0/1)	-	-	-	-	8m (0/0)	-	1h 30m (0/1)	1h 38m (0/1)	1h 38m (0/1)
6	900830152	17h 08m	09/21/2013	-	-	-	-	-	-	-	-	-	-
7	900824429	126h 02m	01/10/2014	6h 27m (13/16)	10m (0/0)	1h 46m (0/0)	-	1h 13m (2/3)	-	-	3h 18m (11/13)	6h 27m (13/16)	6h 27m (13/16)
8	900804730	53h 54m	12/05/2013	3h 47m (0/0)	-	-	-	3h 45m (0/0)	-	1m (0/0)	1m (0/0)	3h 47m (0/0)	3h 47m (0/0)
9	900786549	6m	10/07/2013	6m (0/0)	6m (0/0)	-	-	-	-	-	-	6m (0/0)	6m (0/0)
10	:	144h 38m	12/02/2013	10h 29m (9/9)	1h 38m (1/1)	2h 51m (0/0)	2h 51m (0/0)	-	1h 43m (6/6)	-	1h 27m (2/2)	10h 29m (9/9)	10h 29m (9/9)
11	:	156h 47m	02/02/2014	10h 31m (7/11)	-	-	5h 16m (2/3)	3h 31m (0/1)	-	1h 05m (3/4)	39m (2/3)	10h 31m (7/11)	10h 31m (7/11)
12	:	121h 46m	11/25/2013	1h 19m (1/3)	-	7m (0/1)	-	25m (0/1)	48m (1/1)	-	-	1h 19m (1/3)	1h 19m (1/3)

LEARNING SEQUENCE LOG

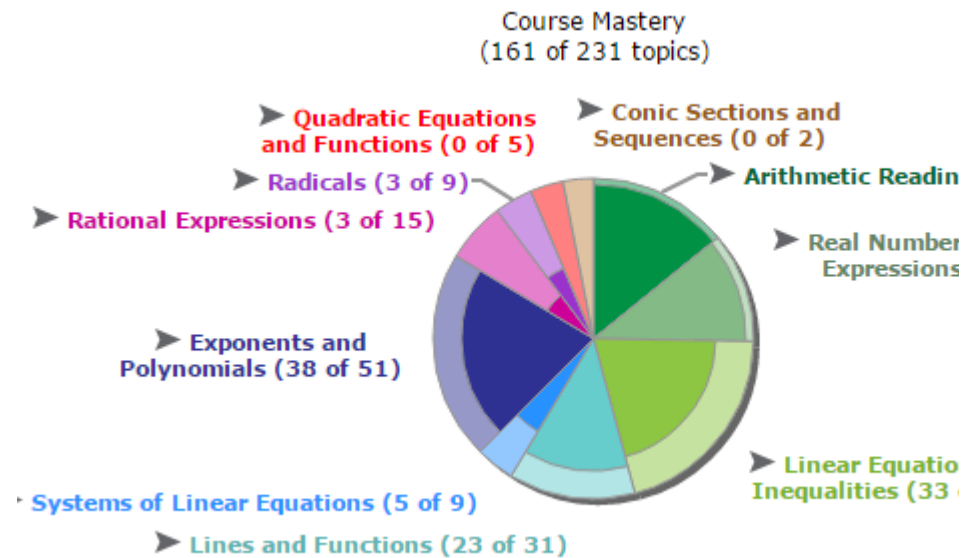| Learning:	Solving a linear inequality: Problem type 2	
	5:14:37 PM	Explain
	5:16:52 PM	Wrong
	5:17:09 PM	Explain
	5:22:26 PM	Correct
	5:25:33 PM	Correct
	5:26:47 PM	Wrong
	5:27:40 PM	Wrong
	5:28:09 PM	Wrong
	5:28:10 PM	Explain
	5:29:54 PM	Wrong
	5:30:13 PM	Wrong
	5:30:20 PM	Explain
	5:32:06 PM	Wrong
	5:32:16 PM	Wrong
	5:32:45 PM	Failed
	5:33:15 PM	Explain
	5:35:57 PM	Correct
	5:37:48 PM	Correct
	5:40:21 PM	Wrong
	5:42:50 PM	Wrong
	5:43:11 PM	Wrong
	5:43:27 PM	Wrong
	5:43:27 PM	Explain
	5:45:42 PM	Correct
	5:47:09 PM	Correct
	5:49:29 PM	Added to Pie

Ready to Learn

Skill	%
Solving a system of linear equations using elimination with addition	54% >
Graphically solving a system of linear equations	46% >
Finding the perimeter or area of a rectangle given one of these values	46% >
Writing the equations of vertical and horizontal lines through a given point	38% >

Attempted, Not Mastered

Skill	%
Factoring a quadratic with leading coefficient 1	8% >
Applying the percent equation: Problem type 2	8% >
Finding the perimeter or area of a rectangle given one of these values	8% >
Solving equations involving vertical angles	8% >

STUDENT EXPERIENCE IN ALEKS

Course Mastery
(161 of 231 topics)

- ➤ **Quadratic Equations and Functions (0 of 5)**
- ➤ **Radicals (3 of 9)**
- ➤ **Rational Expressions (3 of 15)**
- ➤ **Exponents and Polynomials (38 of 51)**
- ➤ **Systems of Linear Equations (5 of 9)**
- ➤ **Lines and Functions (23 of 31)**
- ➤ **Conic Sections and Sequences (0 of 2)**
- ➤ **Arithmetic Readin**
- ➤ **Real Number Expressions**
- ➤ **Linear Equatio Inequalities (33**

The table gives the temperature (in °F) in five cities at 6 a.m. on the same day. Use the table to answer the questions.

City	Temperature (°F)
Miami	83
Portland	47
Houston	69
Buffalo	-12
Montreal	-26

(a) How much lower was the 6 a.m. temperature in Montreal than in Buffalo?

⬚ °F lower

(b) By noon, the temperature in Buffalo had risen by 17 °F.
What was the temperature there at noon?

⬚ °F

Clear   Undo   Help

Next >>   Explain

(a) The temperature in Montreal was -26 °F . (It was 26 °F *below* zero.)

The temperature in Buffalo was -12 °F . (It was 12 °F *below* zero.)

We want to find **how much lower** the temperature was in Montreal than in Buffalo. We are finding a difference, so we **subtract**.

$$-12-(-26) = -12+26 \quad \text{By double negation}$$
$$= 14$$

The temperature in Montreal was 14 °F lower than in Buffalo. [More]

(b) The 6 a.m. temperature in Buffalo was -12 °F . (It was 12 °F *below* zero.)

By noon, the temperature had **risen by** 17 °F .

So to find the noon temperature, we **add**.

$$-12+17 = 5$$

The temperature in Buffalo at noon was 5 °F . [More]

Here is the answer.

APPREHENSIONS/MISCONCEPTIONS

Students are all in a different place

Can only use ALEKS in self-paced class

Can only use ALEKS in computer lab

THE IMPACT OF ALEKS AT GPC

Students/instructors know exactly what types of problems are causing confusion.

Instructors can concentrate on teaching students skills to be successful – organization, time management, retention skills.

Instructors can design meaningful activities: focus on difficult topics, provide conceptual understanding, present mini-lessons, develop group activities, and so on.

Lower withdrawal rates

No more "gaming" the system

Students take ownership and responsibility of learning

Repeating students pick up where they left off in previous semester

Students working on what they are ready to learn

Pass rates have more than tripled

STUDENT PERFORMANCE PRIOR TO REDESIGN

From Fall 2008 to Spring 2011, pass rates steadily declined (close to 40% in each course)

Students took an average of 2.97 semesters to exit developmental math sequence.

Only about 16% of the lowest level students exited our developmental math program.

TOTAL ENROLLMENT IN DEV MATH COURSE

Fall 2012	3387	Spring 2014	2366
Spring 2013	2893	Summer 2014	808
Summer 2013	906	Fall 2014	2166
Fall 2013	2247		

AFFORDABILITY OF ALEKS

Subscription based (11 weeks, 18 weeks, 52 weeks)

Multiple courses completed with one access code

OUR TRANSFORMATION

One Size Fits All

Individualized