
# Transitioning to ALEKS

## A How-to Guide By Instructors, For Instructors

# Transitioning to ALEKS:
# A How-to Guide by Instructors, for Instructors

## Table of Contents

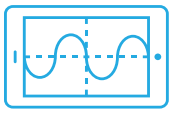
# Introduction

**Welcome!**

If you're reading this, then you are close to or already have taken the leap from a traditional homework management system to ALEKS. While it may seem like you are in uncharted waters, rest assured you made the right choice. This guide will help you make the transition from your old system to ALEKS. We'll help you to see homework from a new perspective and explore what adaptive learning can do for your students.

## Let's get started!

### From One Instructor to Another



**Faculty to Faculty Advice**

Throughout the guide, you'll notice boxes like this one. These are tidbits of advice from instructors who went through the same process that you are about to embark upon. You'll see pointers on what worked for them and what didn't.

There will also be some words and phrases that are **bolded in purple**. These words and phrase are defined in the Transitioning Terminology section of this guide on page 14.

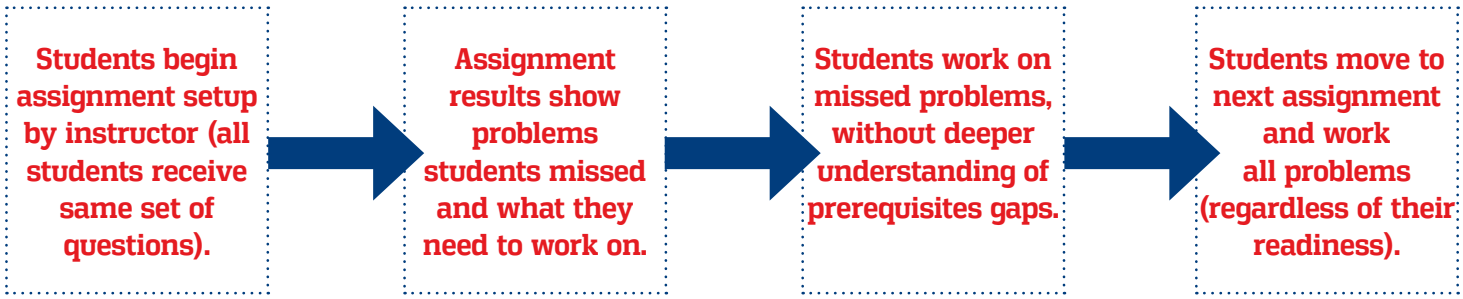
# Why is ALEKS so different?

## Adaptive Learning in Traditional Systems

Consider how you've used learning technology with your class. Step one is choosing a textbook. Then you create homework assignments, quizzes, and exams around each textbook section or chapter for all students to complete. While some find this method useful, it expects every student to be on the same page at the same point in time. As we know, that is never the case.

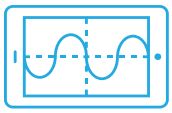
Most traditional learning technologies' main function is that of a homework management system, and to some degree there is a level of adaptive learning to accommodate the different levels of student knowledge. Given that there are several varieties of adaptive learning, we aren't always sure what "adaptive" means when we hear it. Adaptive learning typically means that the system in question adjusts the learning experience to each individual student's learning needs. How effective each system is in accomplishing this is what makes them vastly different from each other.

In most traditional learning technologies, an instructor can create an assignment to assess students' knowledge of specific topics. After attempting the assignment, students then seek out assistance through the system on the assignment topics they didn't assess well on. However, this is just one layer of adaptation because students only practice topics that were part of the assignment. Additionally, students only move forward on one path.




What this type of adaptive, linear learning fails to do is to **identify why the student missed the topics** on the assignment in the first place. Was the student ready to learn that topic? Did she have the prerequisite skills to understand it? Did she simply make a careless error? As a result, students may not be able to establish a connection between their actual abilities and the problem at hand. This can cause frustration and a lack of motivation.

### From One Instructor to Another



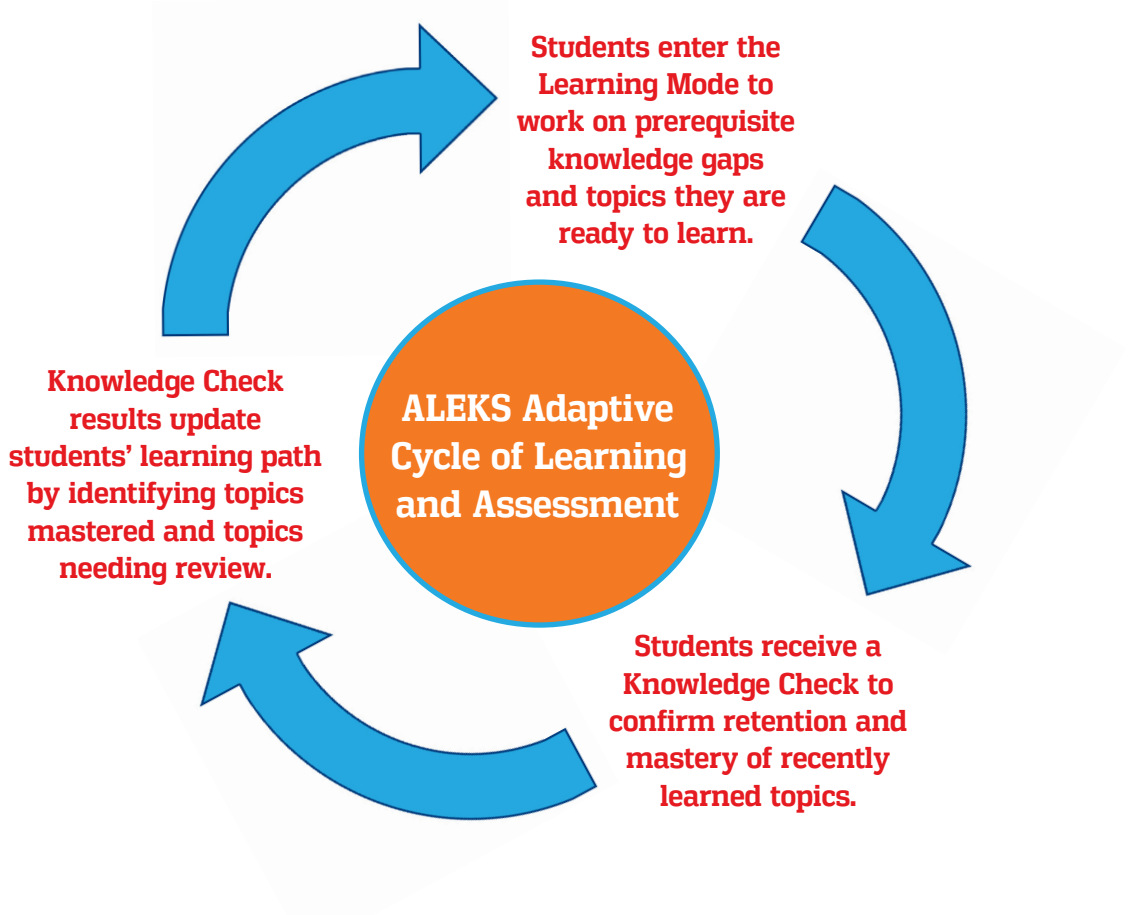
**Use ALEKS as it was designed to be used.**

"The best tip for using ALEKS is to use the program as it was designed to be used. Don't try to emulate another homework management system. Adaptations will be required based on what type of classroom you have, but at least give the program a chance to work on its own. Don't try and stifle the program. It's about trusting the system."

# Adaptive Learning in ALEKS

ALEKS sets a different, higher standard in adaptive learning. ALEKS uses knowledge space theory, a combinatorial structure of the possible states of student mathematical knowledge, to deliver mastery-based learning and assessment to students on a highly personalized level. Mastery-based learning is defined as a teaching method where progression through a course is dependent on proficiency as opposed to amount of time spent on academic work.

ALEKS is a multi-layer adaptive learning model for students. Through an adaptive, open-response assessment, ALEKS maps an individual student's knowledge state, which is the combination of topics the student has mastery of and the topics she is most ready to learn. ALEKS then builds the student a plan of action that moves her strategically through topics that she is "ready to learn" based on her current knowledge. This ensures that students are not struggling beyond their capabilities and are firmly in the zone of proximal development. Students then practice topics within the zone of proximal development and are re-assessed to determine if they have successfully mastered these topics before moving on into a new set of topics.




Your classroom will be different using ALEKS. Students will be working more effectively through the material, but no two students will be in the same knowledge state at the same time. ALEKS will help you to identify where each student is in terms of mastery, where they struggle, and where they need to go. As a result, you'll find yourself naturally shifting your focus from class success to individual success.

At the end of the day, the goal of every course is student success, from both the instructor's and students' perspectives. ALEKS delivers on this success because mastery in ALEKS correlates strongly to mastery in this course.

## Intrigued? Let's move into the ALEKS mindset!

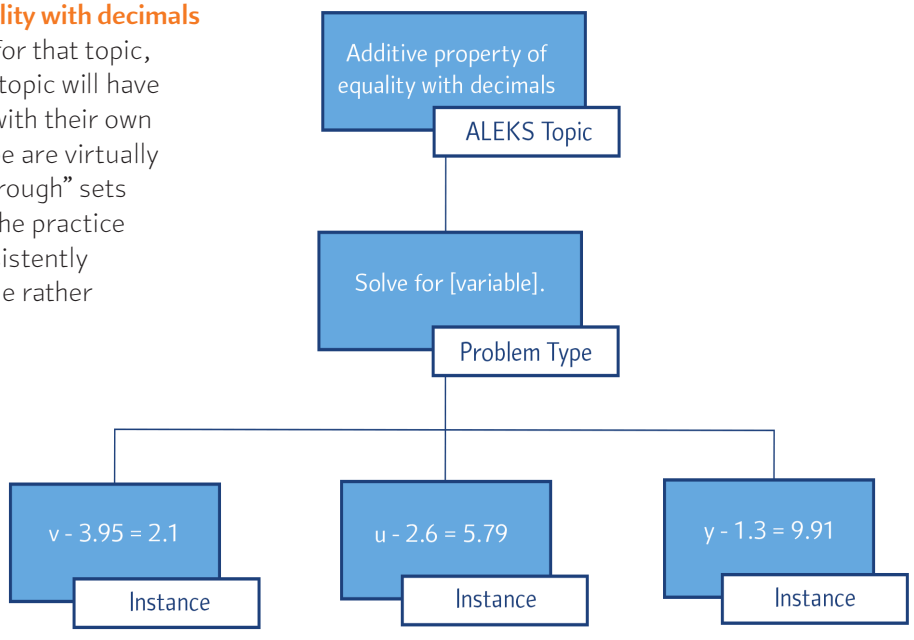
# The ALEKS Mindset

## Anatomy of an ALEKS Course

The first step to understanding an ALEKS course is to see how the content is created and structured. Then using ALEKS will make much more sense! The ALEKS content is developed by an in-house team of PhDs, content specialists, and mathematicians all with teaching experience. To develop the content, they take into consideration the numerous textbooks, teaching methods, and pedagogy that are most commonly used. Therefore, the content is written and vetted to the highest degree, and not tied to a specific methodology or textbook. This allows for great flexibility in how it can be used.

Each ALEKS course is made up of hundreds of **topics** that cover core course concepts and critical prerequisites. Each topic has **problem types** to teach the topic. Each problem type then has **instances**, which are the specific practice problems. The problem types and instances are algorithmically generated, and vary in numbers, narratives, difficulty, and other parameters.

Take the ALEKS topic **Additive property of equality with decimals** as an example. Here you see one problem type for that topic, and three instances for that problem type. This topic will have several problem types to teach the topic, each with their own set of instances. The instances of a problem type are virtually infinite, making it nearly impossible to "cycle through" sets of problems. There is enough variability within the practice problems that a student can only get them consistently correct by truly understanding the core principle rather than memorizing a process.



# What does this mean for you and your students?

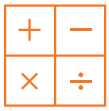
Now that you see how an ALEKS course is structured, what does this means for you and your students?

**For you** it means looking at an assignment holistically, rather than focusing on what problems to assign. You're selecting which topics are covered in each assignment, and the ALEKS system is doing the grunt work of selecting the specific practice problems (i.e. instances). The system also handles the daunting task of analyzing the student results on each assignment and delivering this data to you, so you can make informed decisions on lectures, remediation, progress, classroom activities, etc.

**For your students** it means that the stakes are higher for homework assignments. It's more than just drill and kill, getting through the work, and turning it in for a grade. Students are having a meaningful, informed learning experience, not just in math, but also about their abilities. They begin to see that success in the ALEKS Pie equates success in the course.

By taking this holistic approach to assignments, we're ensuring that the purpose of homework is being met: to reinforce the topics learned in class, target and remediate knowledge gaps, and prepare students for exams.

## From One Instructor to Another



### Familiarize yourself with the Student View feature.

"Using ALEKS can be a big change for students, so it's vital that they understand how the system works starting on day one. The best way to get them up to speed is to first familiarize yourself with the student experience so you know exactly what they will be going through.

The Student View feature (located in the Class Tools menu on your Class Dashboard) in your instructor account allows you to see your class as a student. You can do everything in the class that your students can do (don't worry, your work won't show up in the ALEKS reports). Be sure to take a look at your class setup from your student's perspective before the class begins!

Also, one of the most important functions to know in the ALEKS student module is how to navigate from topic to topic. Many instructors will still use some sort of lecture component in their classrooms. This could be a regular 50-minute lecture three times a week or it could be some series of shorter lectures, known as "mini-lectures." For both of these scenarios it is important to know how to direct students to specific topics that you want them to practice in order to say on pace with your lectures.

At the top of the page of the student interface, there is a tab that will allow students to open a Carousel and view a series of topics. Students can scroll through and find the topic that you want them to practice or the one you may want to lecture on for that day. Generally, students will need to be reminded of this feature frequently for the first few weeks."

# The Purpose of Assignments

With a traditional homework management system, you have the ability to create homework assignments, quizzes, and tests where students are all assigned the same set of problems. There are times when these assignments can be useful. However, if you rely heavily on creating assignments "just like the other programs" you will limit the capabilities of ALEKS.

One advantage to ALEKS is that the course content is not tied to a specific textbook. This also means that homework in ALEKS is not just an assigned set of problems taken directly from a textbook chapter. To understand ALEKS assignments, we need to take a close look at the core purpose of assignments such as homework, quizzes, and exams.

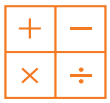
- **Why do you assign homework, quizzes, and exams?**
- **What do you hope students will get out of them?**
- **What do you hope to learn from the results?**

**Homework** is meant to reinforce what was learned in class and to prepare students for exams. It's also a way to pinpoint where knowledge gaps are so students can effectively remediate those gaps. Student work in the ALEKS Pie accomplishes this. When learning in ALEKS, students are working on exactly where they need remediation, or are working on exactly what they are ready to learn. You can control what and when students work on with **ALEKS Objectives**, so that it corresponds to what is being taught in class and paces students along with your curriculum and textbook.

**Quizzes and exams** are designed to assess student mastery of the material, which is the purpose of the **ALEKS Assessments**. These assessments allow students to demonstrate mastery of recently learned topics and topics continued mastery of topics learned earlier in the course. If students demonstrate mastery, they get credit for it. If they don't, ALEKS will work with them to remediate and reinforce topics missed. Because ALEKS requires students to repeatedly demonstrate their understanding of course content, retention is greatly increased. You have control over when and how often students can be assessed.

## The next logical question is how can we make sure our assignments are serving their purpose?

### From One Instructor to Another




**It's more than homework, quizzes, and exams.**

"Most instructors are familiar with the standard 'create your homework, quizzes, and exams' setup. You may even be tempted to use this same setup and ignore the ALEKS Pie completely. This has been tried and the implementation did not show any increase in student achievement.

If you are transitioning to ALEKS because you want to increase student success and retention, then you will need to leave the 'old' setup behind. ALEKS is designed to create an individual pathway of success for each student. If you choose to ignore this fundamental design in ALEKS then you are not going to see any significant change in your students' success."

# Using ALEKS Assignments

Now that we are looking at assignments a little differently, we can discuss how to use assignments in ALEKS. When you setup a class in a homework management system, you expect to create assignments such as homework, quizzes, and exams, and incorporate a means to track and grade participation and progress. All of this can easily be done in ALEKS.

The most common work assigned to students in ALEKS are **Objectives**, **Progress Assessments**, **Scheduled Assessments**, and **Pacing Goals**. Below is a general overview of these assignments; you can learn more about them in the Transitioning Terminology section of this guide on page 16. While the flexibility of ALEKS gives you the freedom to pick and choose which assignments to use, keep in mind the purpose of your assignments as you select them.

### Objectives = Homework

Objectives serve as the homework assignments to reinforce student learning. They are chunks of content selected and assigned by the intructor to pace students through the material in order of the textbook and/or curriculum.

### Progress Assessments = Quizzes

Progress Assessments are automatically generated throughout a student's learning to check mastery of the content. They determine which topics the student has mastered, and which ones the student will need to review.

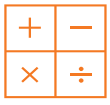
### Scheduled Assessments = Exams

Scheduled Assessments are ALEKS assessments scheduled by the instructor and recorded in the gradebook (as opposed to progress assessments). They can be used to check student mastery at strategic points throughout the term.

### Pacing Goals = Progress and Attendance Trackers

Pacing Goals are used to track regular progress and time in the system to keep students engaged and motivated. The instructor determines the defining metrics for each pacing goal, such as a required weekly time or progress goal.

## From One Instructor to Another




**Creating your own assignments is still okay.**

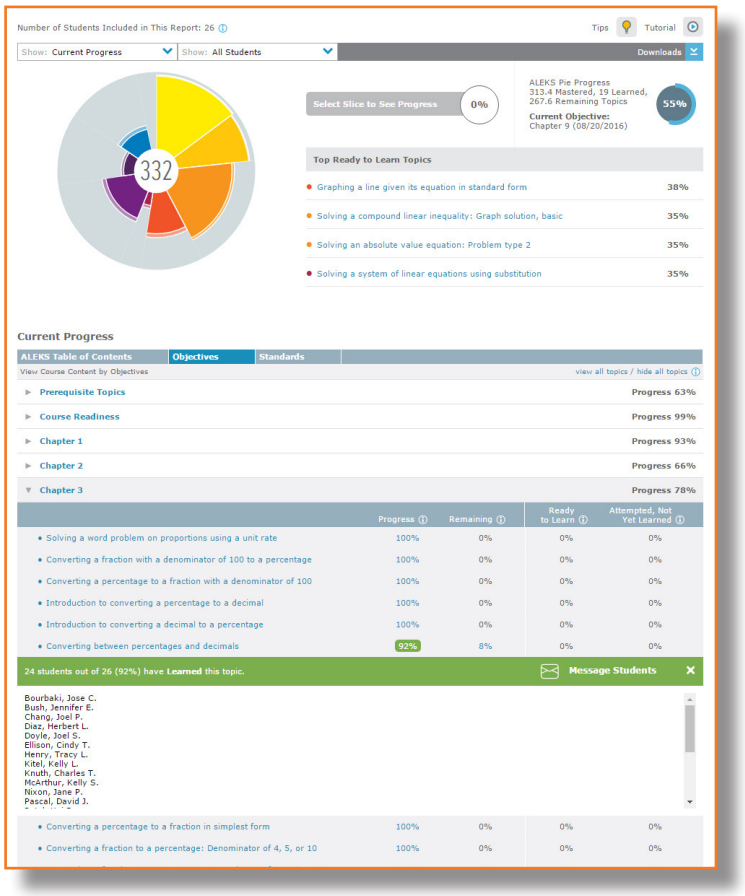
"Although it's best to use ALEKS as it was designed to be used, that does not mean that you have to avoid using your own assignments all together. Depending on the style of your classroom, you may want to use your own exams or use a mix of ALEKS assignments and those outside of the system. For example, a more traditional classroom may use a combination of ALEKS scheduled assessments, written quizzes, and a department-created exam."

# Tracking Student Progress

## The Other Purpose of Assignments

The purpose of assignments is really two-fold: on the one hand they reinforce learning and pinpoint knowledge gaps. On the other hand, they are also meant to collect data on a student's learning so you can make informed decisions. Instructors generally like to know where students are in the course and what they have accomplished. ALEKS makes "checking up" on students, individually or as a group, quick and easy with the set of reporting features available. Here are the most popular.

**The ALEKS Pie Report** tracks individual student and class progress for each course area and topic. You can also view progress for each Objective. With this report, you know each student's strengths, weaknesses, and level of readiness at all times, as well as the level of readiness for the entire class.

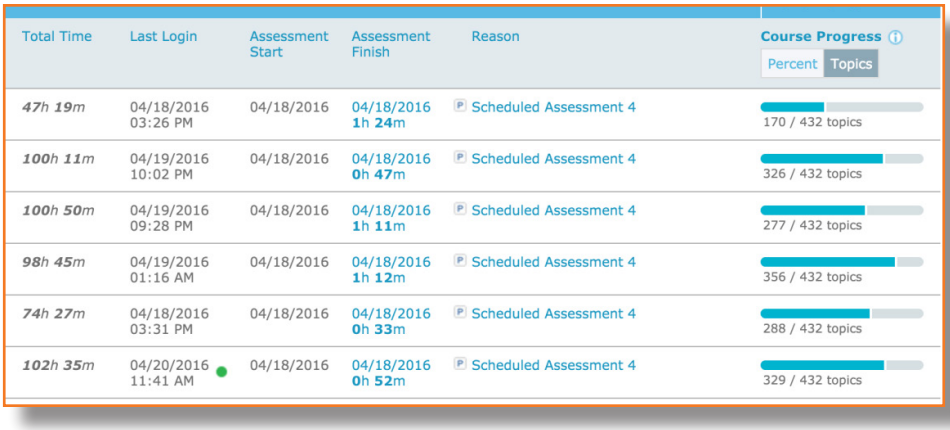



### From One Instructor to Another

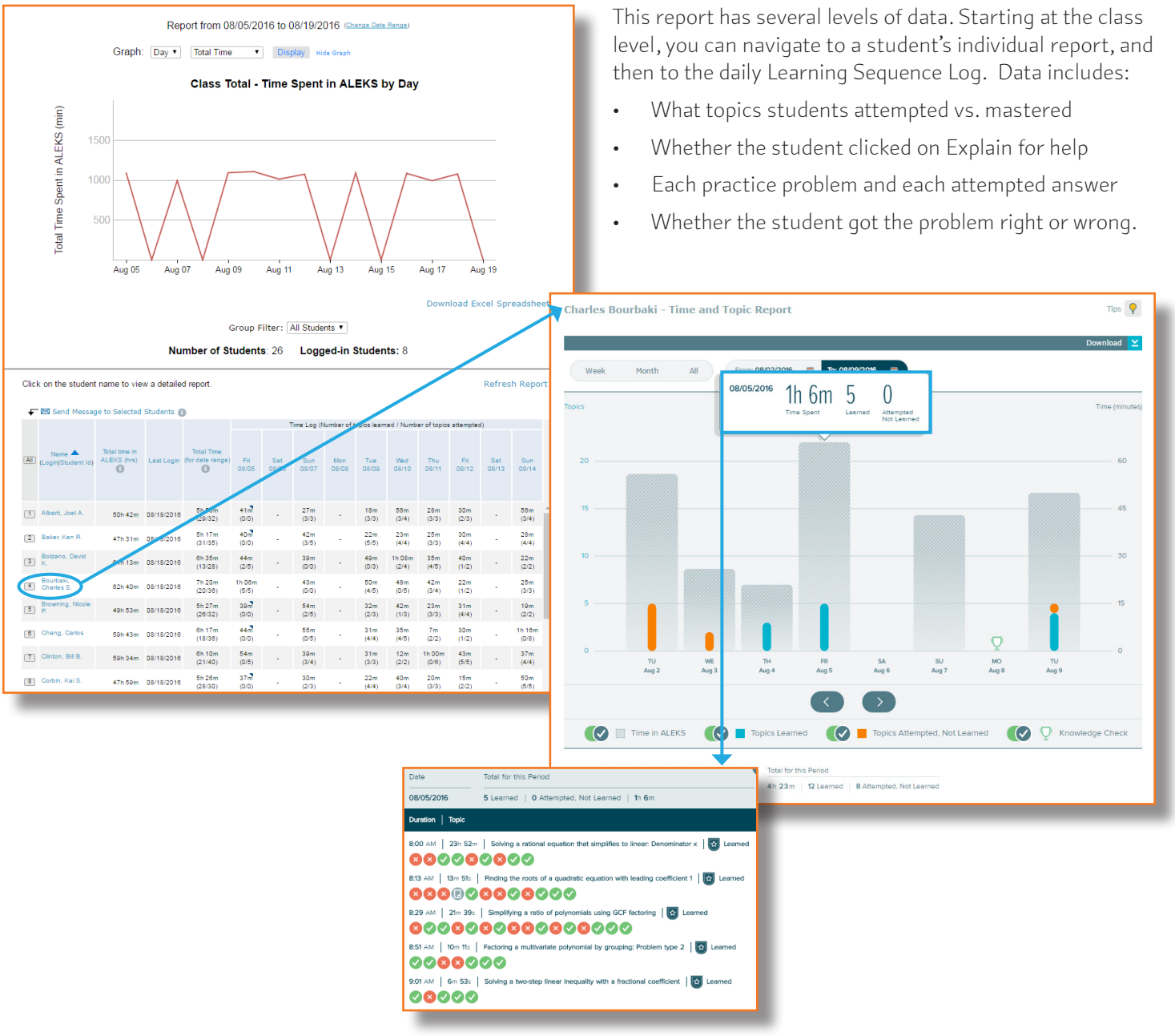
**ALEKS Pie Report**

"The ALEKS Pie is the reporting tool that I use the most to shape my course lectures. It shows me which topics the majority of students are ready to learn. Although these topics may not match the course as it was taught in previous semesters, ALEKS is giving me topics in which students are most likely to build their skills and confidence."

**The Progress Report** shows student progress in the ALEKS Pie and on ALEKS assessments. This translates to what the student **learned vs. mastered**. With this report, you track overall progress toward course mastery and each learning Objective, and can see trends in each student's learning rates, such as topics learned per hour.



**The Time and Topic Report** gives you a bird's eye view of how the class is spending their time in ALEKS on a daily, weekly, and monthly basis, as well as for each individual student. Not only do you see students' time logged, but you can see exactly what they are doing when they are logged in. With this information, you can have more meaningful discussions about how students are spending their time on homework, and why they keep missing certain problems.




This report has several levels of data. Starting at the class level, you can navigate to a student's individual report, and then to the daily Learning Sequence Log. Data includes:

- What topics students attempted vs. mastered
- Whether the student clicked on Explain for help
- Each practice problem and each attempted answer
- Whether the student got the problem right or wrong.

## From One Instructor to Another

### ALEKS Time and Topic Report

"I use this report to help students on an individual basis. First, you can see how students are working and how much progress they are making at daily, weekly, or monthly intervals. If you click on a specific day you can view exactly what a student attempted or completed during this time."

# Top 5 Misconceptions
## And How to Avoid Them

ALEKS is definitely different from other systems, which leads to some legitimate questions and concerns from instructors. Here are a few of the most frequent misconceptions that you may encounter, and how some instructors handled them.

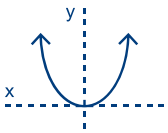
### Aren't all homework management systems adaptive?

Most homework management systems available either have some level of adaptation or at least try to be adaptive. However, ALEKS uses Knowledge Space Theory to meet students where they are and help them progress through the entire course on a guided, individualized path. This is a fundamentally different approach.

### I heard ALEKS is great for a self-paced course, but I'm teaching a lecture-based course. Will it still work?

Yes, ALEKS works great for a self-paced implementation. However, ALEKS has all of the same capabilities as your traditional homework management system used in other settings. There are ways to tailor ALEKS to function successfully in all classroom settings, including lectured-based. Check out the Stories from the Field section in this guide to learn more about how other instructors were able to successfully adapt ALEKS to a lecture-based setting.

**From One Instructor to Another**



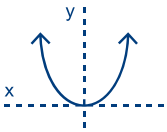

**Know the adaptive nature of ALEKS to make it work for you.**

"Typical homework management systems rely on instructors to create specific assignments and encourage students to seek out assistance. ALEKS Objectives are not tied to a specific section or chapter in specific textbook, rather the Objectives are part of an overall curriculum. While ALEKS is designed to lead students through topics as they are ready to learn them, you still have control over pacing students through the material using Objectives."

## Do students get "lost" in the ALEKS Pie?

With the latest advances to the student interface, it's never been easier for students to jump right into their learning. So, it's not about getting "lost" in the pie, but about getting help on a topic. With ALEKS, your students see the problem for what it is, a math concept, as opposed to "problem 5 from chapter 2". And you have the data to help them right when they need it.

### From One Instructor to Another

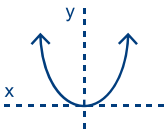



**Students know how to navigate better than you realize.**

"I was more concerned about students getting 'lost' in the pie than the students themselves. Adjusting to a new classroom style is never easy, but as the instructor you need to rethink your approach when implementing ALEKS.

Students can, and will, guide themselves through the topics at the pace they need. Students will ask questions when they reach a topic that confuses them, and they will make statements such as, *'I am having difficulty with the domain and range of the composition of functions.'* Having students that are able to identify areas of concern instead of referring to 'chapter 5 section 2' is a drastically different question. You will spend less time trying to narrow down questions and areas of weakness and more time helping students with specific topics of concern.

### From One Instructor to Another




**It's all about the ALEKS Pie.**

"ALEKS allows you to create your own homework, quizzes, and tests just like other homework management systems. However, be cautious in creating too many of these assignments that don't tie back to the ALEKS Pie. In the end, it's too much busy work for students and dilutes the capabilities of ALEKS."

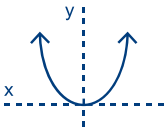
## I've always setup my grades around participation, homework, quizzes, and exams. Can I do this in ALEKS?

Yes, you still have the ability to setup your grading system around participation, homework, quizzes, and exams in ALEKS. It's a matter of understanding the ALEKS assignments and the gradebook setup, particularly which gradebook category can translate into participation, homework, quizzes, and exams. Your implementation manager will also help you to setup your course so that it aligns with what you want your students to achieve.

## I'm starting to get this – how do I explain it to the rest of my group?

The McGraw-Hill Math team will be glad to help setup training opportunities for instructors. Take advantage of their expertise. There is also a wealth of resources available on www.aleks.com/highered/math under Instructor Resources and Student Resources.

### From One Instructor to Another




**"Baby steps" to a successful training.**

"As with all changes, be prepared for some resistance. To reduce your stress and the stress of those in transition, plan to have several opportunities for your colleagues to learn about and explore ALEKS. We started with small groups of individuals who were more willing to learn, and then shared their experiences over a semester or two. Taking a grassroots approach will help ease the transition and not make it feel forced."

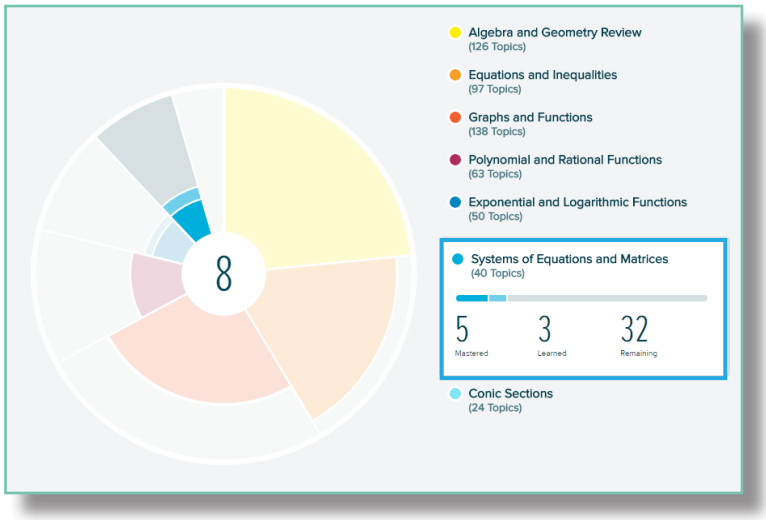

# ALEKS Transitioning Terminology
## Terms to Know Before you Start!

We've already established how ALEKS is different, and knowing this is the first step. Next you will want to get to know the common terminology used with the program so that your transition is easy and smooth.

### Learned vs. Mastered

In ALEKS there is a difference between learning a topic and **mastering** it. This difference is conveyed to students through the categories of each pie slice: Learned, Mastered, Remaining. A student clicks on the pie slice to see how many topics in that slice she has learned, how many she has mastered, and how many she has left to do.

Mastering a topic is a two-step process: First a student must learn the topic. When a student successfully answers several practice problems of a topic correctly (and not necessarily in a row), ALEKS gives the student credit for having learned it. However, this is not the last time the student will see the topic.




The student then has to prove mastery of the topic on an ALEKS assessment. Once mastery is demonstrated on an assessment, ALEKS gives the student credit for mastery. Again, this may not be the last time a student sees the topic, as ALEKS knows that students proving their mastery once isn't always a guarantee. The student may need to revist the topic at a later point if ALEKS has determined that mastery of that topic is not strong enough.

## ALEKS Topics

The content within an ALEKS course is divided into topics, which cover core course concepts and critical prerequisites. ALEKS courses have hundreds of topics that an instructor can include/exclude from their ALEKS class setup. Instructors can then assign groups of topics for students to learn in order to pace their learning. A topic is broken down into problem types and instances:

- **Problem Types:** each ALEKS topic has a set of problem types that teach the topic. The problem types are different types of practice problems that are algorithmically generated, and vary in numbers, narratives, difficulty, and other parameters.
- **Instances:** each problem type has instances, which are the specific problems that students see in their learning and on assessments. These are also algorithmically generated and vary. The instances are virtually infinite. There is enough variability within the practice problems that a student can only get them consistently correct by truly understanding the core principle rather than memorizing a process.

## ALEKS Objectives

ALEKS Objectives are chunks of content that instructors select and assign to students in order to pace their learning. Think of Objectives as the homework assignments for the class since they correlate to the flow of your textbook or your curriculum. There are two types of Objectives: with end dates or without end dates. Your course structure will determine which type of Objectives you prefer to use.

- **Objectives with end dates** require students to learn the content within the Objective by a specific date. On that date, students receive a grade in the gradebook for the portion of the Objective they have completed. In other words, if a student learns 80% of the content within an Objective by the due date, then that student receives 80% as the homework grade. What about the remaining 20% the student didn't learn? Don't worry! Those topics will appear throughout the remaining Objectives when they are essential prerequisites.
- **Objectives** without end dates allow you to select a mastery level for students to reach prior to moving into the next Objective. This option works best for truly self-paced courses where students are starting and finishing at different points throughout the semester, such as an emporium model. For example, if you want students to master 90% of Objective 1 before they move on to Objective 2, regardless of when they complete it, then you would assign a 90% mastery level for Objective 1, and so on.

### From One Instructor to Another

#### Balancing Objective due dates

First and foremost, it's best to not adjust due dates once your course has started. Assigning due dates encourages students to hit milestones throughout the course. For example, setting a due date for an Objective covering Linear Equations and Inequalities prior to a lecture on the same topic would ensure students are exposed to the content before class and are better prepared.

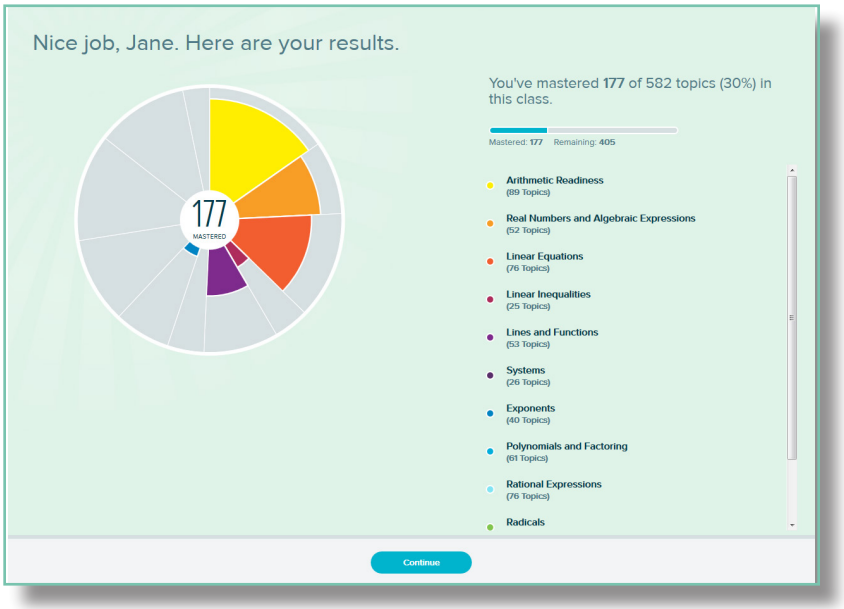
If your Objective due dates are more than a week apart, then you'll want to add a Pacing Goal to battle the procrastination. Since Objectives will pace student learning, they work great with the Pacing Time Goal.

## ALEKS Assessments

ALEKS Assessments (i.e. Knowledge Checks) measure student mastery of topics. They are adaptive, individualized, open-response, and no more than 30 questions. Think of these assessments as quizzes; they can be taken in a proctored setting or at home, but they require students to prove that they've mastered topics before moving forward. The beauty of these assessments is that they serve the function of a human tutor. They determine which topics the student has mastered, and which ones the student still needs to work on. The student then has a clear picture of what to focus on in their learning.

Assessment results are a bit different from traditional quiz or exam results. Instead of getting a list of problems you got right and wrong, the assessments results are displayed in the pie slices of the ALEKS Pie Chart. Why is this? Because knowing what students need to focus on as a result of what they got right and wrong is more useful data to both instructors and students (as opposed to trying to figure this out on their own).

When a student completes an assessment, they will see the results in the ALEKS Pie Chart. The colored portion of each slice represents how much of the slice the student has mastered in terms of topic count, and the gray is topics not yet learned. After each ALEKS assessment, the student's pie chart adjusts based on the assessment results.




There are different types of assessments that occur in a student's learning, each of which can be controlled to some extent by the instructor. Your Implementation Consultant and ALEKS Customer Support can help you with this.

- **Progress Assessments** are automatically generated throughout a student's learning to ensure mastery of recently learned topics. They occur after a student has logged five hours and learned 20 topics, or after a student has logged 10 hours. Other assessments can "block" these from triggering so students don't get over assessed. While these assessments are not logged in the gradebook, an instructor can track the results through the ALEKS Reports.
- **Post-Objective Assessments** are triggered when a student completes an Objective. They are on by default when an instructor sets up Objectives, but can easily be turned off. These can be proctored or un-proctored. They assess the student over recently learned material. While these assessments are not logged in the gradebook, an instructor can track the results through the ALEKS Reports.
- **Scheduled Assessments** are assigned by the instructor for a specified date and time. They can be proctored and password protected, and are recorded as a grade in the gradebook. There are two types of scheduled assessments:
  - **Scheduled progress assessments** assess students on material relevant to their individual learning histories (mostly topics recently learned). A common use is to schedule these on the due dates of Objectives in lieu of the Post-Objective Assessments. That way the grade is logged in the gradebook.
  - **Scheduled comprehensive assessments** assess students over the entire course material, similar to the course initial assessment. A common use is to schedule one of these as the mid-term or final exam.

**Be sure to tell students:** they may see topics they have not yet completed or have already mastered on the Progress and Post-Objective Assessments. ALEKS does this to reinforce mastery and to test the limits of what they know. Also, it's completely normal to see less than 100% retention of topics on an assessment, so students should expect to see a handful of learned topics that they will have to review again because they did not prove mastery on the assessment.

## Pacing Goals

Pacing Goals are used as motivators to maintain course engagement. Using Pacing Goals in various classroom settings can encourage students to work through the ALEKS material on a regular basis. Be cautious however; most instructors have experienced first-hand that students are "masters of procrastination" and will typically wait until the last minute to finish their goals.

- **Pie Progress Goals** require students to have learned or mastered a percentage of the topics in the ALEKS Pie by a specific date. Examples of use are setting 50% of the pie to be learned or mastered by the middle of the term or 100% by the end of the term.
- **Time Goals** require students to log a certain amount of time in ALEKS over a defined period of time. You can set daily, weekly, etc. time goals. This goal only measures the time a student has logged, so it is best to pair it with another goal or grade that tracks learning progress.
- **Topic Goals** require students to learn a set number of topics over a defined period of time. When setting the number of topics to be learned, keep in mind that topics covered early in the course tend to require less time to learn than later topics. Also, make sure that the number of topics to be learned will allow students who have low initial assessment scores to complete the course in a timely manner.

### From One Instructor to Another

#### Motivating Procrastinators

Set Pacing Goals to be completed on a weekday, not the weekend. For instance, set a weekly time goal that opens on Friday and closes on Thursday night. This will allow students to work on their goals early or during the week, and leaves opportunities to ask questions during class time. It's better to get questions during the week as opposed to frantic emails on Sunday night.

Try setting Pacing Goals for a specific, consistent day or days of the week (they don't always have to be weekly). This would work well for a typically Monday, Wednesday and Friday lecture series. You could require students to work in ALEKS for two hours on Tuesday and two hours on Thursday as part of their course grade.

Topic Goals go hand in hand with Time Goals. While the Time Goal ensures student are at least logging in, the Topic Goal will ensure students are also learning the material. It's best to use both the Topic and Time Goals if you aren't planning on using Objectives.


## West Virginia University

Let me introduce myself, I am Joelleen Bidwell. I have been working either at a community college or university for the past seven years. My degrees are in Mathematics, Mathematics Education, and Accounting (yup, that's right accounting). Throughout my career I have worked mostly with developmental education as well as curriculum development and implementation.

Here's my story of how we transitioned to ALEKS for two of our courses at West Virginia University. I'm sharing my story with you in hopes that you can learn from my missteps and early confusion, and that you find our course models as a useful starting point for your ALEKS courses. As you become more familiar with the program, expect to make changes in order to meet your own classroom needs... just like we did.

### Our ALEKS Courses:

- Lecture-Based PreCalculus with *Coburn: Precalculus, 2nd edition*
- Hybrid College Algebra with *Miller/Gerken: College Algebra, 2nd edition*

In addition to telling you our ALEKS story for our current precalculus and college algebra courses, I will also share what my ideal emporium model setup would be with ALEKS, based on my experience teaching at a community college.

# Lecture-Based PreCalculus Course

**Dr. Lori Ogden, Course Coordinator**
**Joelleen Bidwell, Instructor**

## How was ALEKS incorporated into this course?

When I first taught this precalculus course, I was handed the course outline from the course coordinator Dr. Lori Ogden, who had been working with ALEKS. We use ALEKS as a supplement to lecture material, which students utilize outside of class time. The lecture-based classroom requires more structure than courses that are more self-paced in order to keep students on pace with the lectures themselves.

## What is different about this course with ALEKS?

A common issue that Dr. Ogden and I saw in a lecture-based classroom was the need to use multiple features in ALEKS to keep students engaged and progressing through the material at the same rate. Sometimes student engagement needed to be addressed even at a section level, as every class of students is different and may require more or less incentive to keep up with the pace of the course.

## What is the course setup?

Students meet for lectures approximately two and a half hours per week, as well as meeting for lab time once a week for 50 minutes. This could be two or three days per week. Our course covers topics in Algebra and Trigonometry. The student to instructor ratio is 75:1.

We use ALEKS Objectives with end dates to pace students, and integrate the *Coburn PreCalculus, 2nd edition* textbook. Each Objective has a Post-Objective Assessment. We assign two scheduled ALEKS Assessments for the mid-term and final, which are IP-address restricted to a designated testing center so students can take them in a proctored setting outside of regularly scheduled class time. The WVU sections of PreCalculus have access to a full computer lab once a week for lab activities, which is used for the ALEKS Initial Knowledge Check during the first week of class.

## What are your students' expectations?

Our students are expected to attend class and participate in class activities. Students are also expected to complete 100% of their ALEKS pie by the end of the semester, and take two ALEKS Scheduled Assessments in a proctored computer testing lab. Although the assessments are taken outside of class, they are scheduled for specific days and times. The majority of work in ALEKS is completed outside of class time, although instructors have the option to allow students time in class to work on problems using their own computers or mobile devices.

## What are the expectations of course instructors?

Outside of preparing lectures, our course coordinator and instructors work to design the course to keep students engaged throughout the semester. For example, instructors can use the features in ALEKS to track student progress throughout the semester and contact students who may have fallen behind. While they aren't able to check-in with all students individually on a regular basis, they instead focus on contacting and touching base with students who are behind the recommended pace. We use email and office hours to assist these students or point them to campus services where they can receive assistance.

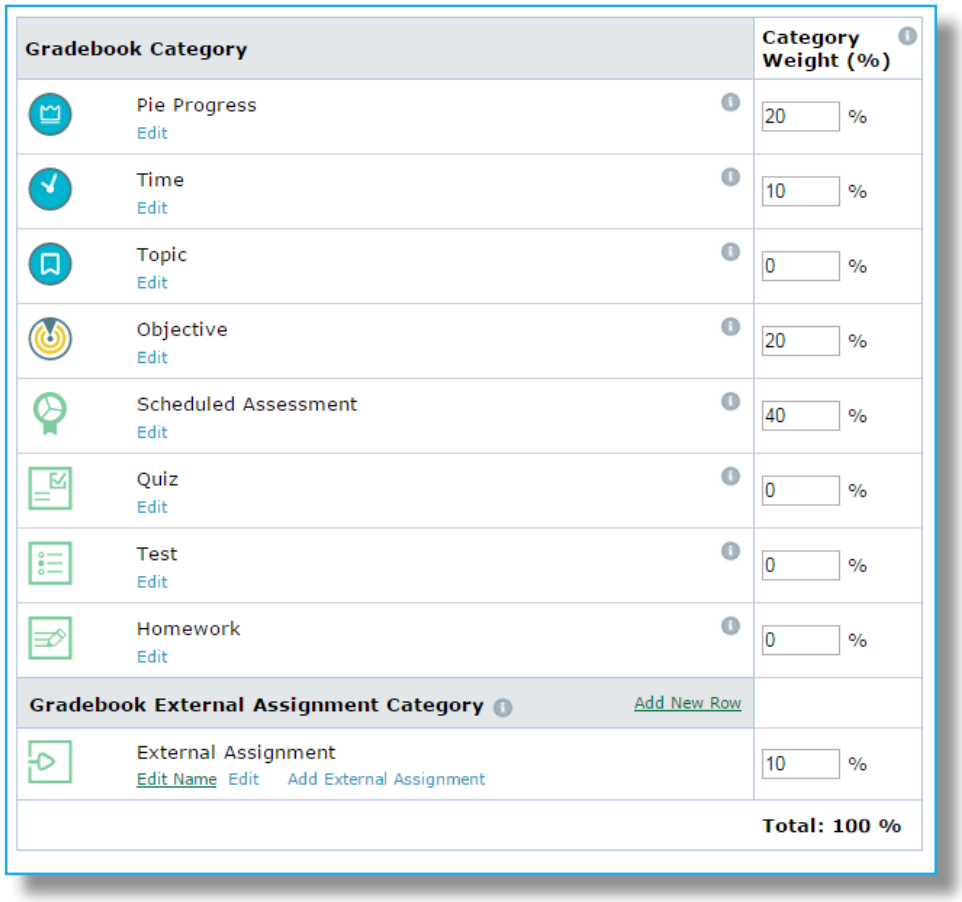
## What changes have you made to your ALEKS setup? Why?

Students need encouragement to stay on pace but they are either going to do their homework or not, regardless of the system you use. For a lecture-based class, we learned to focus on the lectures themselves and keep students engaged during the lecture time. Instructors need to address the topics in the ALEKS Objectives and expand on them. This leads me to believe that, even in a lecture-based classroom, "less is more" with the ALEKS system. Too many assessments or quizzes or due dates can create too many restrictions for students.

## What do you recommend for a gradebook setup?

The original course gradebook for the WVU PreCalculus course was set up by Dr. Lori Ogden and included lab activities, scheduled quizzes, and class participation requirements that may or may not be used in a lecture-based course. Below is an example based off of our own gradebook setup, to serve as a basic starting point. Make changes where you see fit until you and your students are in sync. Be sure to get feedback from your students at the end of each term.

When setting up the gradebook, decide if you want any of the assignments proctored, or if you are okay with students completing them from anywhere. This is always a difficult balance, and I have found through each new course that I prefer that students' grades be tied to something that is proctored. With this in mind, I would start by tying the students' grade to progress in the pie at the end of the semester, weekly time goals, Objectives, scheduled assessments, and attendance. The goal should be to create some pacing structure for the student, while making sure that mastery is demonstrated.



| Gradebook Category | | Category Weight (%) |
|---|---|---|
| | Pie Progress<br>Edit | 20 % |
| | Time<br>Edit | 10 % |
| | Topic<br>Edit | 0 % |
| | Objective<br>Edit | 20 % |
| | Scheduled Assessment<br>Edit | 40 % |
| | Quiz<br>Edit | 0 % |
| | Test<br>Edit | 0 % |
| | Homework<br>Edit | 0 % |
| Gradebook External Assignment Category | Add New Row | |
| | External Assignment<br>Edit Name Edit Add External Assignment | 10 % |
| | | Total: 100 % |

### Pie Progress: 20% of course grade

The Pie Progress portion of the students' grade replaces regular quizzes throughout the semester. Pie Progress in this case is set as a single grade due the last day of the semester. The homework portion of the grade is then taken care of by the Objective category (see next page). To create more structure for the course, you can also divide the pie mastery into quarters instead of making it one grade with one due date.

### Time Goal: 10% of course grade

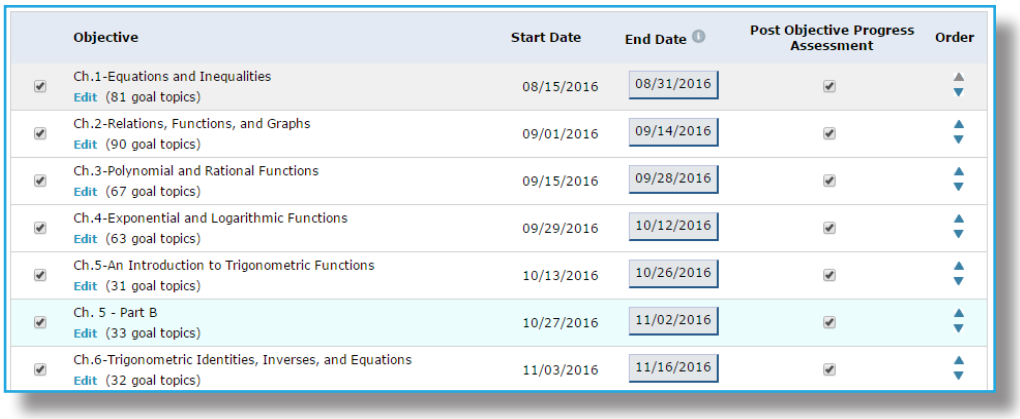
Each week students are expected to work in ALEKS for a total of four hours. The start and end dates are set for Monday through Monday (or make them another weekday). This helps to keep students from procrastinating and having to complete their time goals over the weekend. Be careful about assigning a time goal that works for all students. We learned that some students had no problem logging enough time, while others had a stronger algebra foundation and didn't need to spend as much time in ALEKS, especially during the first few weeks. Give these stronger students an extra ALEKS assignment to help them reach their time goal.

## Objective: 20% of course grade

When initially setting up the course, you may choose to use Objectives with end dates because it provides some structure and a timeline for students to complete specific sections of the course. Objectives are graded based on the percentage of topics learned in the Objective by the due date, which essentially replaces the traditional homework assignment. Students are expected to practice and learn the topics in each Objective, but not necessarily demonstrate mastery prior to the due date. Mastery is instead demonstrated on the Post-Objective Assessment.

When setting the Objective end dates, keep them between two and three weeks apart and include the Post-Objective Progress Assessments. You may choose to shorten or lengthen the time between Objectives based on your experience. I have found it is important to keep due dates close together, since the goal is to create a pacing guide for students. The Objective due dates will also drive the lecture schedule, so choose the dates carefully and watch out for school holidays.

Keep in mind that you'll want to find a balance between due dates and topic count that is reasonable for your students. For example, you wouldn't want large Objectives with due dates close together. And you wouldn't want small Objectives that are far apart.



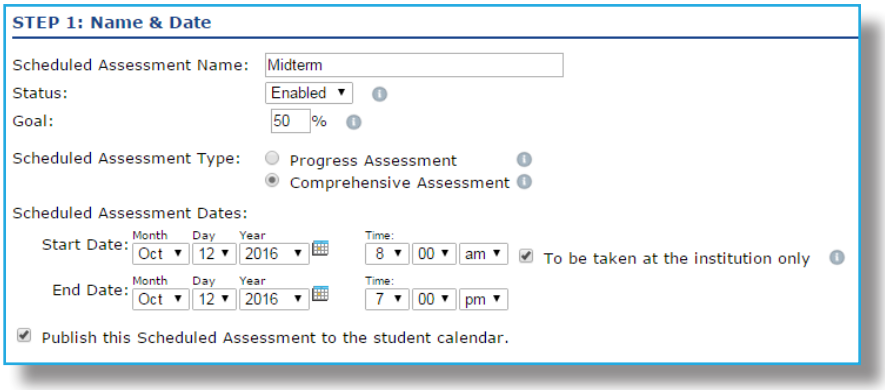
| | Objective | Start Date | End Date | Post Objective Progress Assessment | Order |
|---|---|---|---|---|---|
| ☑ | Ch.1-Equations and Inequalities<br>Edit (81 goal topics) | 08/15/2016 | 08/31/2016 | ☑ | ▲▼ |
| ☑ | Ch.2-Relations, Functions, and Graphs<br>Edit (90 goal topics) | 09/01/2016 | 09/14/2016 | ☑ | ▲▼ |
| ☑ | Ch.3-Polynomial and Rational Functions<br>Edit (67 goal topics) | 09/15/2016 | 09/28/2016 | ☑ | ▲▼ |
| ☑ | Ch.4-Exponential and Logarithmic Functions<br>Edit (63 goal topics) | 09/29/2016 | 10/12/2016 | ☑ | ▲▼ |
| ☑ | Ch.5-An Introduction to Trigonometric Functions<br>Edit (31 goal topics) | 10/13/2016 | 10/26/2016 | ☑ | ▲▼ |
| ☑ | Ch. 5 - Part B<br>Edit (33 goal topics) | 10/27/2016 | 11/02/2016 | ☑ | ▲▼ |
| ☑ | Ch.6-Trigonometric Identities, Inverses, and Equations<br>Edit (32 goal topics) | 11/03/2016 | 11/16/2016 | ☑ | ▲▼ |

## Scheduled Assessment: 40% of course grade

We use Scheduled Assessments for the course midterm and final exam. You can also use Scheduled Assessments to correspond with typical chapter exams. However, avoid creating Scheduled Assessments as chapter exams if you already are using Post-Objective Assessments. If you have both, you are essentially testing students twice on the same material.

The first Scheduled Assessment serves as the course midterm and occurs halfway through the semester. Approximately 50% of the course material is expected to be completed, so the goal for this assessment is set at 50%. The final Scheduled Assessment has a goal of 100%, since students would be expected to have all of the course material completed.

Both the Scheduled Assessments are set as comprehensive, meaning students are tested on the entire course material, as opposed to what they just recently learned in the pie.



**STEP 1: Name & Date**

Scheduled Assessment Name: Midterm
Status: Enabled
Goal: 50 %
Scheduled Assessment Type: ○ Progress Assessment ◉ Comprehensive Assessment
Scheduled Assessment Dates:
Start Date: Month Oct Day 12 Year 2016 Time: 8 00 am ☑ To be taken at the institution only
End Date: Month Oct Day 12 Year 2016 Time: 7 00 pm
☑ Publish this Scheduled Assessment to the student calendar.

## External Assignment-Attendance: 10% of course grade

Although attendance is important in all classes, there is less emphasis on attendance in our setup. Students are either in attendance and participating in the lectures or they are not. We use the external assignment category in the ALEKS gradebook to allow our instructors to enter a percentage grade for attendance. Students can then see how their attendance, or lack thereof, is affecting their grade.

# Hybrid College Algebra Course

**Dr. Mary Beth Angeline, Course Coordinator**
**Joelleen Bidwell, Lead Instructor**

## How was ALEKS incorporated into this course?

Our hybrid model blends emporium and lecture-based sessions that cover remedial and college algebra topics. I have worked with this course since it began using ALEKS. In this course we use ALEKS as the primary course material. Students use ALEKS both during class time and for homework assignments. Class time is divided between lecture and ALEKS independent work. ALEKS is used for all graded assignments and for keeping students on pace to complete the course.

## What is different about this course with ALEKS?

Prior to ALEKS, this course was a five day a week lecture course with homework done outside of class. With the introduction of ALEKS, instructors have had to rethink their approach to everyday class meetings. ALEKS has a wide range of tools that aid in determining how and when course content is delivered. We have found that our best approach to daily activities is to be flexible. Go to class with a plan, but be open to changing the plan based on the ALEKS data. For example, the ALEKS Pie Report informs us which topics students are ready to learn, and therefore which topics will be most impactful during class.

## What is the course setup?

Students meet five days a week for 50 minutes a day in a computer lab. The student to instructor ratio is 40:1 or less. Keeping these classes relatively small was a priority to allow more attention per individual student.

This college algebra course uses ALEKS Objectives with end dates, and integrates the *Miller/Gerken College Algebra, 2nd edition* textbook. Each Objective has a Post-Objective Assessment. The ALEKS Initial Knowledge Check is taken during the first three days of class, proctored during class time. Similarly, scheduled assessments are taken during class and password protected.

## What are your students' expectations?

Our students are expected to attend class and participate in class activities. Students are also expected to complete 100% of their ALEKS Pie by the end of the semester. Five ALEKS Scheduled Assessments are given throughout the course, all of which are proctored. However, students are able to take Post-Objective Assessments anywhere.

## What are the expectations of course instructors?

Our instructors decide which topics students can reasonably be expected to master on their own and which topics will need to be addressed in class. Using the tools in ALEKS, an instructor can alter their plans to include topics that the majority of students are ready to learn and omit topics that the majority of students have already mastered. For example, if about 80% of the class has mastered a topic, I generally omit it from class instruction. Instructors also create (sometimes in collaboration with others) in-class assignments. Although more preparation is required in the beginning of the course.

## What changes have you made to your ALEKS setup? Why?

We have gone through several changes since we began using ALEKS and continue to evolve. As with all great plans, things change. The most interesting change we made was the elimination of time goals and the inclusion of topic goals. This chart shows us where we started and where we are now.

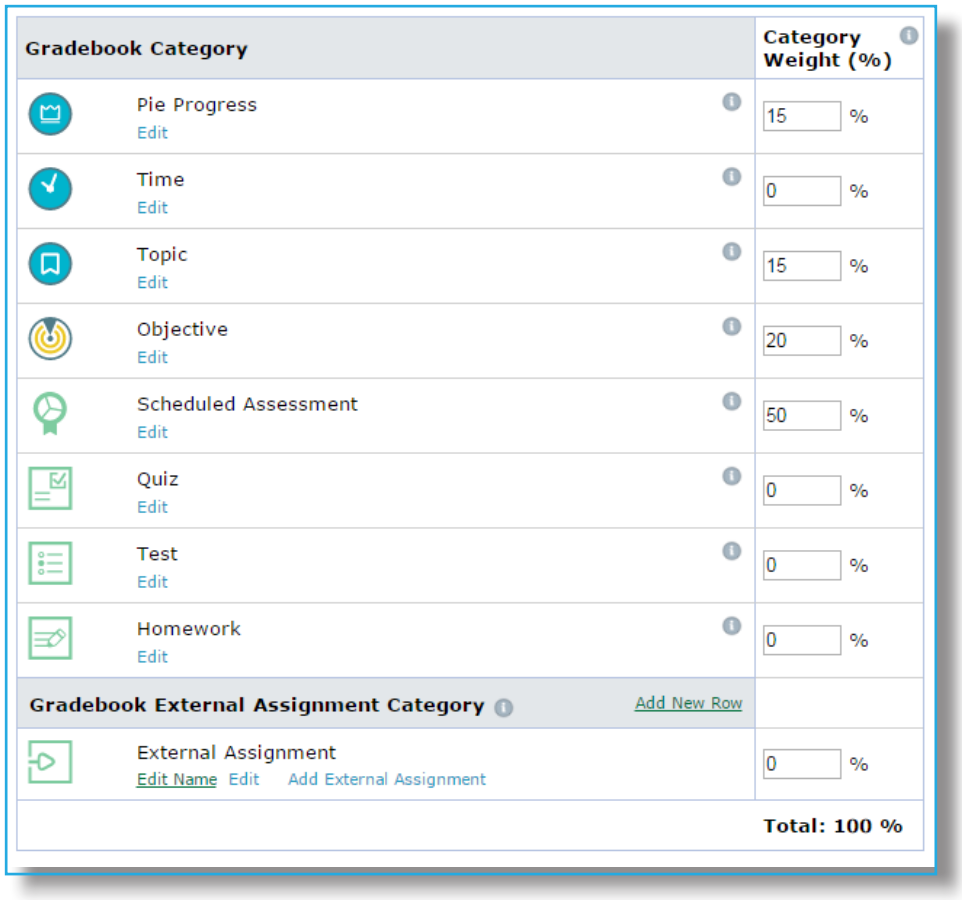
| | Then | Now |
|---|---|---|
| Pie Progress | 30% | 15% |
| Time Goals | 10% | 0% |
| Topic Goals | 0% | 15% |
| Scheduled Assessments | 40% | 50% |
| Objectives | 20% | 20% |

When we asked students about ALEKS at the end of the term, they requested the use of topic goals instead of time goals. They felt that having a weekly goal of learning a set number of topics would increase their overall success in the course. We also reduced the weight of Pie Progress and increased the weight of Scheduled Assessments. This move was motivated by instructor concerns about students demonstrating mastery in a proctored setting.

## What do you recommend for a gradebook setup?

We have made several changes to this course over time. Below is a suggestion on where to start if you are trying ALEKS for the first time. I provided a rational for using each category. As always, be flexible!

First consider what role ALEKS will play in your class. In the following setup, I am using ALEKS as the primary course material. My objectives with this setup are to create a small amount of structure for the student, and to ensure that their mastery level is demonstrated through proctored or in-class evaluation methods. This model also includes attendance. I believe attendance is important for this type of course, but I don't generally award points for just sitting in a seat. I typically require class work and participation to be counted as present for the day.



| Gradebook Category | Category Weight (%) |
|---|---|
| Pie Progress<br>Edit | 15 % |
| Time<br>Edit | 0 % |
| Topic<br>Edit | 15 % |
| Objective<br>Edit | 20 % |
| Scheduled Assessment<br>Edit | 50 % |
| Quiz<br>Edit | 0 % |
| Test<br>Edit | 0 % |
| Homework<br>Edit | 0 % |
| **Gradebook External Assignment Category** Add New Row | |
| External Assignment<br>Edit Name Edit Add External Assignment | 0 % |
| | **Total: 100 %** |

### Pie Progress: 15% of course grade

The Pie Progress portion of the students' grade replaces regular quizzes throughout the semester. Pie Progress in this case is set as a single grade due the last day of the semester. The homework portion of the grade is then taken care of by the Objective category (see next page).

### Topic Goal: 15% of course grade

Here we are using topic goals to create more structure for students. Since students will need to be on pace to complete the course, we have chosen to assign weekly topic goals. For example, students would be required to complete 30 topics per week. To encourage students to work in ALEKS throughout the week we assign the completion of these topics from Friday to Friday. This means they can get a head start over the weekend before the content is addressed in class, but new topics would need to be completed before the following weekend.

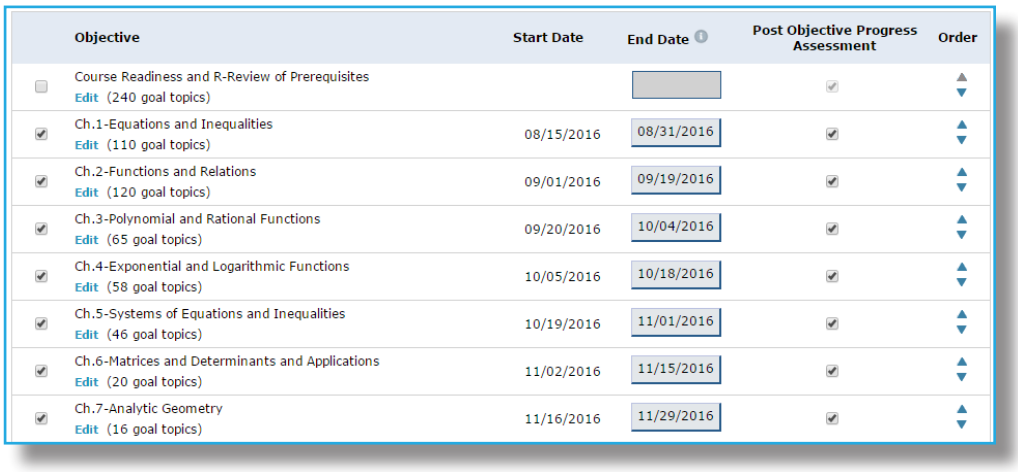
## Objective: 20% of course grade

The Objectives are graded based on the percentage of topics learned in the Objective by the due date. This provides structure and a timeline for students to complete specific sections of the course. Completing Objectives replaces traditional homework. Students are expected to practice and learn topics in each Objective but not necessarily demonstrate mastery prior to the due date. Students are still expected to master all of the topics in each Objective throughout the semester, which is measured by their completion of the Post-Objective Assessments.

This course has set end dates, generally between two and three weeks apart. It is important to keep Objective due dates relatively close together, since the goal is to create a pacing guide for students. These due dates will also drive the lecture schedule for the course, so choose the dates carefully and watch out for school holidays. It's also important to watch your topic count in each Objective.

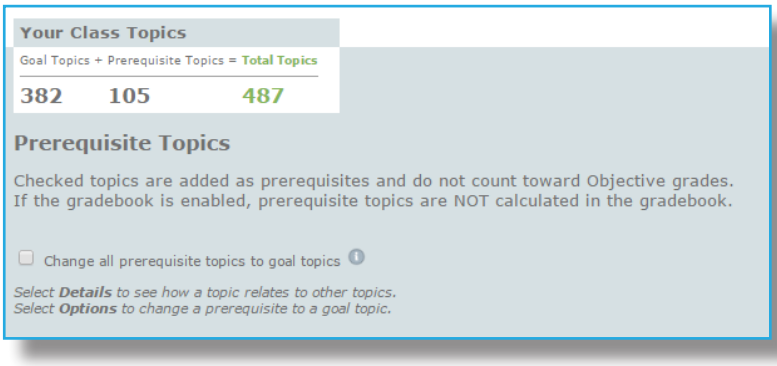
You'll want to find a balance between due dates and topic count that is reasonable for your students.

Note that the course readiness and review topics are not included as an Objective. For this particular course, we chose to leave those topics as prerequisites only and not count toward an Objective grade.



| | Objective | Start Date | End Date | Post Objective Progress Assessment | Order |
|---|---|---|---|---|---|
| ☐ | Course Readiness and R-Review of Prerequisites<br>Edit (240 goal topics) | | | ☑ | |
| ☑ | Ch.1-Equations and Inequalities<br>Edit (110 goal topics) | 08/15/2016 | 08/31/2016 | ☑ | |
| ☑ | Ch.2-Functions and Relations<br>Edit (120 goal topics) | 09/01/2016 | 09/19/2016 | ☑ | |
| ☑ | Ch.3-Polynomial and Rational Functions<br>Edit (65 goal topics) | 09/20/2016 | 10/04/2016 | ☑ | |
| ☑ | Ch.4-Exponential and Logarithmic Functions<br>Edit (58 goal topics) | 10/05/2016 | 10/18/2016 | ☑ | |
| ☑ | Ch.5-Systems of Equations and Inequalities<br>Edit (46 goal topics) | 10/19/2016 | 11/01/2016 | ☑ | |
| ☑ | Ch.6-Matrices and Determinants and Applications<br>Edit (20 goal topics) | 11/02/2016 | 11/15/2016 | ☑ | |
| ☑ | Ch.7-Analytic Geometry<br>Edit (16 goal topics) | 11/16/2016 | 11/29/2016 | ☑ | |

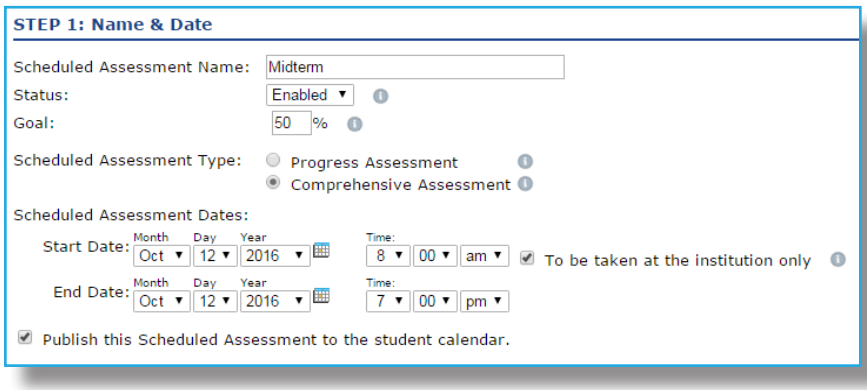
Instead, the course readiness and review topics are included as prerequisites only (which is done in a later step of the course setup). This means that they will appear to students who need them, right when they are critical to learning an Objective topic (i.e. goal topic). A student who has not demonstrated mastery on a prerequisite topic will be required to learn it before they can attempt the Objective topic. But again, it won't be part of the Objective grade.




## Scheduled Assessment: 50% of course grade

This course uses four Scheduled Assessments to replace regular course exams and one to replace the final exam. The first four assessments have goals of 25%, 50%, 75%, and 90%, respectively. This means that students are expected to know 25%, 50%, 75%, and 90% of the course material for the corresponding assessments. The final Scheduled Assessment has a goal of 100%, since students would be expected to have worked through all of the course material at the time they take the final.

All of the Scheduled Assessments are set as comprehensive, meaning students are tested on the entire course material, as opposed to what they just recently learned in the pie. This gives them a chance to increase their overall pie mastery each time they take a Scheduled Assessments.



# The Ideal Emporium Model

While there are variations to the emporium model, the basic setup is the same: students work independently in a lab setting with an instructor engaging them individually. This model is typically used to accelerate students through a developmental math curriculum, allowing them to work at their own pace. First you should consider what resources you will have available. Will you have access to computer labs? Will there be a separate testing lab? How many instructors or tutors will be in the classroom? There are lots of questions to answer and most likely you already have an idea of how your class is currently running or what direction you want to go. But knowing these things can help you tailor ALEKS to fit your needs.

I am going to draw on my years at a community college to give you my ideal emporium model.

## What is the course setup?

This course setup would use Objectives without end dates with Post-Objective Assessments. It will use only the ALEKS curriculum with no textbook attached. Class sections would meet four days a week for 50 minutes a day. All assessments, both progress and comprehensive, would be taken in a proctored setting. Ideally, students would be able to take assessments during class and there would be a designated testing lab available to students outside of class time.

## What are your students' expectations?

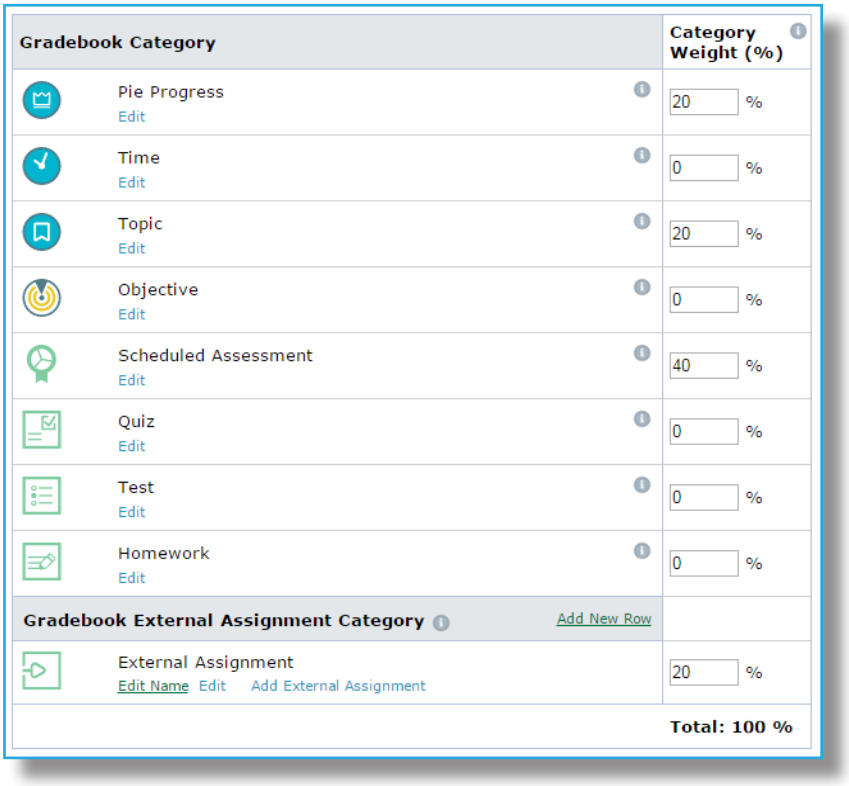
Students are expected to complete 95% of the ALEKS Pie, and take a comprehensive Scheduled Assessment to demonstrate said mastery in order to advance to their next course. Students are expected to attend class every meeting; they are allowed up to six absenses, excused or unexcused. Periodic progress assessments would be required.

## What are the expectations of course instructors?

Instructors in the emporium model take the role of facilitator. Rather than lecturing to the entire class, they are working one-on-one with students. ALEKS provides tools to identify where individual students might need assistance. Instructors should make a point to check-in with each student at least once a week. During this time the instructor can check how many Objectives each student has completed. Using the ALEKS Time and Topic Report, instructors can determine which topics students are struggling with in order to deliver just-in-time remediation.

## Where should you start with the gradebook?

In an emporium model, attendance and student engagement are the keys to successful completion of the course. One way to accomplish this is by using the Time and Topic Pacing Goals in ALEKS, so instructors can address both of these major concerns. In this setup we are assuming that instructors are using a dedicated computer lab where assessments can be proctored. While Objectives are assigned, they are not part of the grade. Instead, a grade is tied to periodic progress in the pie, Scheduled Assessments, and attendance.



### Pie Progress: 20% of course grade

Remember that Pie Progress is not just measuring the learning of topics; it also measures student mastery through periodic assessments administered in ALEKS. Therefore, Pie Progress would be considered both the homework and quiz portion of the course. If you prefer to break up the homework and quiz portion into two separate grades, I recommend assigning a percentage to the Objective category for homework, and removing the Topic Goal as a percentage of the grade.

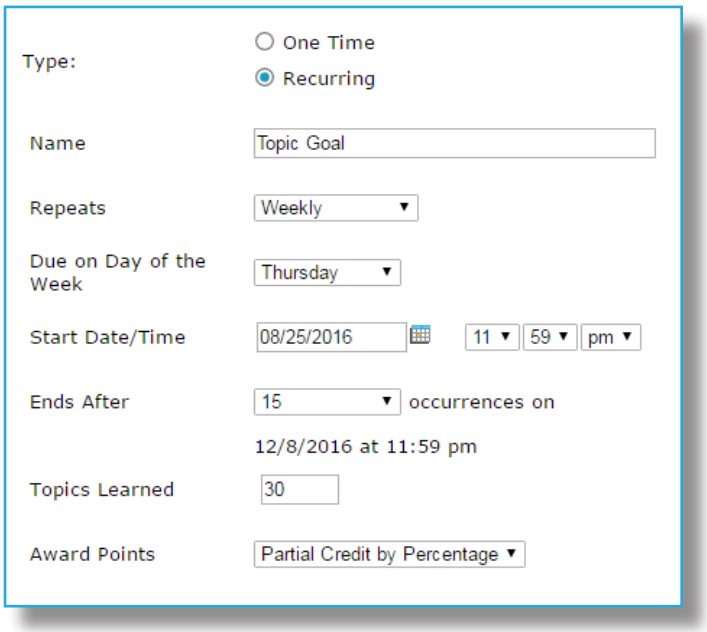
Students would use time in and out of the classroom to work on Objectives and Post-Objective Assessments. Their mastery of material covered in these assignments tracked and graded by the Pie Progress Goals. To motivate students to work throughout the term, assign four Pie Progress Goals about four weeks apart and increase the "Percent of Pie to be Mastered" by 25% for each subsequent goal. For example, by the end of the first four weeks, students need to master 25% of the ALEKS pie. After eight weeks they need to master 50% of the pie, and so on.

### Topic Goal: 20% of course grade

Since the Pie Progress Goals are four weeks apart, you'll want to add another measure to ensure students are logging in regularly and aren't waiting until the last minute. Topic Goals require students to learn a set number of topics during a defined period of time. Setting weekly number of topics that students are required to learn is just one way to keep them engaged and to reduce procrastination.

When setting the number of topics to be mastered, keep in mind that earlier topics tend to require less time to master than later topics in the course. Also, make sure that the number of topics to be learned will allow students who have low initial assessment scores to complete the course in a timely manner.

Lastly, be strategic about choosing a due day for weekly goals. If a class meets Monday through Thursday, then Topic Goals would be due on Thursday.




### Scheduled Assessment: 40% of course grade

Within this emporium model setup, there is one assessment scheduled when students complete 95% of the entire pie. This should be a comprehensive assessment, so students are tested on all topics in the course. Consider this scheduled assessment the "final" of the course. Since the emporium model is self-paced, the start date and end date of the assessment will need to correspond to the start and end date of the course itself. This way the students can take the "final" when they complete the curriculum, instead of waiting until the last day of the class. It is important that this assessment be proctored.

### External Assignment-Attendance: 20% of course grade

Attendance in the emporium model is important to keep students engaged throughout the term. As stated earlier, this course setup allows for six absences, excused or unexcused, before students' grades are lowered. Using the external assignment category in the ALEKS gradebook allows instructors to enter a percentage grade for attendance so students can see how their attendance, or lack thereof, is affecting their grade.

### Objective Goals and Time Goals: 0% of course grade

Why are objective and time goals not included? Remember that the emporium model is designed for students to work independently and progress through the course at their own pace. While both of these assignment types are designed to keep students engaged, using too many assignments in ALEKS simultaneously may hinder individual student progress.

# Your MH Team & Helpful Resources

## Your MH Team

Your team includes a learning technology representative, implementation manager, digital faculty consultant, and a math sales director. This team of specialists ensure that your ALEKS implementation is seamless and painless.

### What Your McGraw-Hill Team Provides

- Course Consultation
- Content and Course Setup Guidance
- First Day of Class (FDOC) Support
- Implementation Guides and Online Resources
- Onsite Workshops and Seminars
- Webinars with McGraw-Hill and Faculty Consultants
- How-to Videos for Students and Faculty
- On-going Support throughout the Course Experience

## Helpful Resources

### Customer Supprt

Customer Support Contact Information: https://mhedu.force.com/aleks/s/alekscontactsupport

Customer Support Articles and FAQs: https://mhedu.force.com/aleks/s/

System Requirements: https://www.aleks.com/support/system_requirements

### For Instructors

Instructor Resources: https://www.aleks.com/highered/math/instructors_resources

Getting Started with ALEKS: https://www.aleks.com/highered/math/getting_started

Training Center with Tutorials and How-to Videos: https://www.aleks.com/highered/math/training_center

### For Students

Student Resources: https://www.aleks.com/highered/math/student_resources

Getting Started with ALEKS: https://www.aleks.com/highered/math/student_start