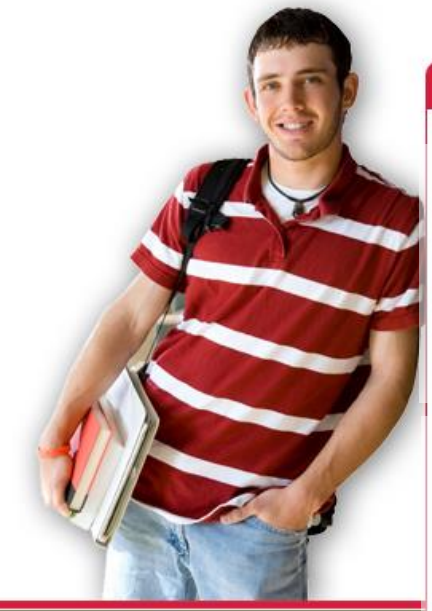
WebAssign®



MOOC Precalculus (almost) at the University System of Georgia

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Talk Outline

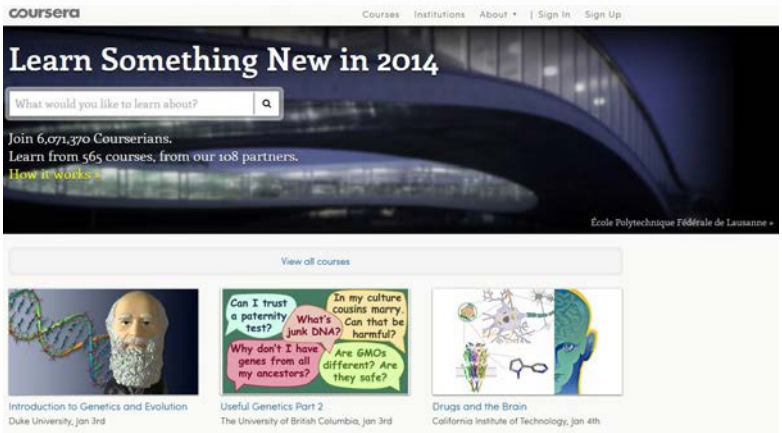
- What is happening in the state of Georgia
- The products
- Scope of the course
- Student experiences
- Numbers at midterm
- Big hurdles (so far)
- Plans for the future

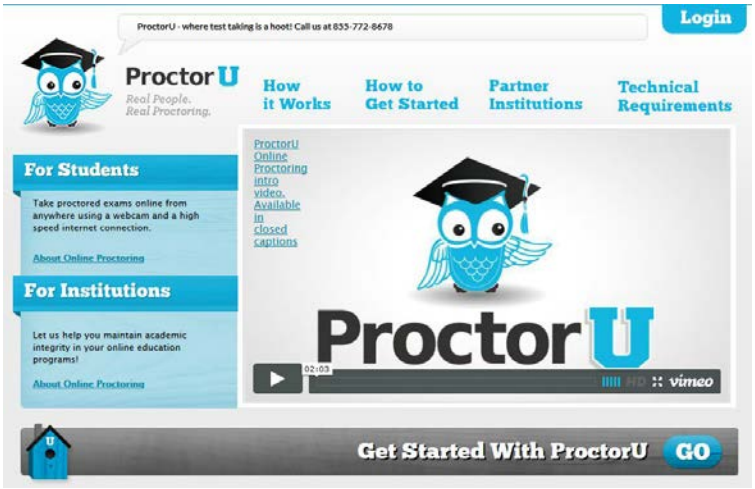
- Lisa Townsley
- townsley@math.uga.edu
- University of Georgia

Why Did We Do This?

- University System of Georgia already has "Georgia on my Line" including D2L Precalculus (weak grading engine)
- USG has a (new) contract with Coursera (ditto)
- USG was concerned with completion rate of Precalculus across the state campuses
- Georgia Tech: an impressive lineup of MOOCs with Coursera and Udacity, experts on tap
- We (UGA math) signed on to maintain some product integrity (interesting dept meeting)
- This type of format is here, we can't pretend otherwise

The Products





MOCC vs MOOC

- MOOC stands for…
- The difference is CREDIT, accreditation
- Other names out there: cMOOC, xMOOC
- IMHO: our students see “online”, not “MOOC” and they think “online = easy”

Scope of the Course 1

- Math 1113-Precalculus: Design team faculty from 5 schools; meets USG content description and so is accepted statewide as transfer credit
- "Emporium Model" for the course
- Pilot at 5 campuses: UGA, GSU, VSU, MGaSt, GPC approved the course with initial hopes for 300 students
- Course framework in Coursera, with direct link-through to WebAssign for e-text, videos, all assessment

WebAssign.

Scope of the Course 2

- Course content is study of function: models, rates, transformations, computations; emphasizing linear, quadratic, exponential, logarithmic, trigonometric and inverse trigonometric functions
- Students work independently within a calendar with monthly achievement requirements
- Faculty (with TA assistance) provide encouragement and targeted instruction

Scope of the Course 3

- Module 1: basic function ideas up to inverses, 15 homework sets, 4 (timed) quizzes, one (timed) module test, all independent (no verification)
- Module 2: exponentials and logs
- PROCTORED MIDTERM EXAM (25%)
- Module 3: A bit more of (2) and elementary trigonometry
- Module 4: Analytic trigonometry, LOS/LOC, elementary vectors
- PROCTORED FINAL EXAM (25%)
- Indep: HW (5%) Quiz (5%) Mod Tests (40%)

Student Views 1

Calendar

SUPPORT

Discussion Forums

WEBASSIGN

WebAssign

MODULE 1

Introduction

Chapter 2.2

Chapter 2.3

Chapter 2.4

Chapter 2.5

Chapter 2.6

Chapter 2.7

Test Prep

MODULE 2 (AVAILABLE 2/13/14)

MODULE 3 (AVAILABLE 2/26/14)

MODULE 4 (AVAILABLE 3/31/14)

Course Objectives: This course is divided into four modules and each module has topics that have learning objectives associated with them. These module specific objectives may be found within each lesson of the module. Students taking the course will:

- Learn the background material necessary to successfully continue with a scientific calculus course.
- Learn algebraic, exponential, logarithmic, and trigonometric functions and their graphs and computations.
- Be able to model functions from given information and use function models to solve problems.

Who is teaching this class?

Instructors for this course come from the five participating institutions. All of the instructors listed below will provide support and guidance for all students in the course regardless of institution affiliation.

Pictured from left: Kevin Yeomans, Peggy Moch, Sutandra Sarkar, Allison Arnold, Sharon Evans (not pictured: Barry Monk)

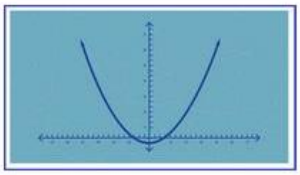
Georgia Perimeter College:
Kevin Yeomans, Department Chair; kevin.yeomans@gpc.edu; (770) 278-1330
Sharon Evans, sharon.evans@gpc.edu; (404) 434-4944

Georgia State University:
Sutandra Sarkar, Precalculus Course Coordinator; ssarkar@gsu.edu; (404) 413-5979

WebAssign

Student Views 2

by Precalculus Emporium Team



ORIENTATION

Coursera Intro

WebAssign Intro

ABOUT THE COURSE

Syllabus

Calendar

SUPPORT

Discussion Forums

WEBASSIGN

WebAssign

MODULE 1

Announcements

Welcome to your MATH1113 Precalculus Emporium!

First day of class:

Just like the first day of any class, you need to take some time to cover the basics. Follow the list below to become acquainted with the class.

1. Review the Syllabus. Find it on the left side Nav Bar. This page will introduce you to the *Emporium*. It covers all essential course information. A printable version will be provided.
2. Watch the introductory videos to Coursera and WebAssign. These materials can be found under the "Orientation" header on the Nav Bar.
3. Take a look at your calendar to get a sense of important dates. A printable version of the calendar will be provided.
4. Post a brief introduction to yourself in the Discussion Forum using the subforum "Welcome! Meet your classmates." ***Note:*** *By default, you will be automatically subscribed to discussion threads to which you post. We suggest unsubscribing to this particular thread to avoid a mountain of notification emails. Find this option under the text*

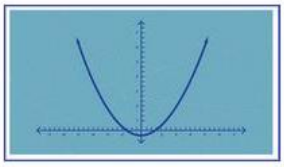
WebAssign.

Student Views 3

coursera | Content Messaging Setup Grading Advanced | Data Teaching Staff Cole Cause

The University System of Georgia

Math1113 Precalculus Emporium
by Precalculus Emporium Team



ORIENTATION
- Coursera Intro
- WebAssign Intro

ABOUT THE COURSE
- Syllabus
- Calendar

SUPPORT
- Discussion Forums

WEBASSIGN

Calendar Index

He

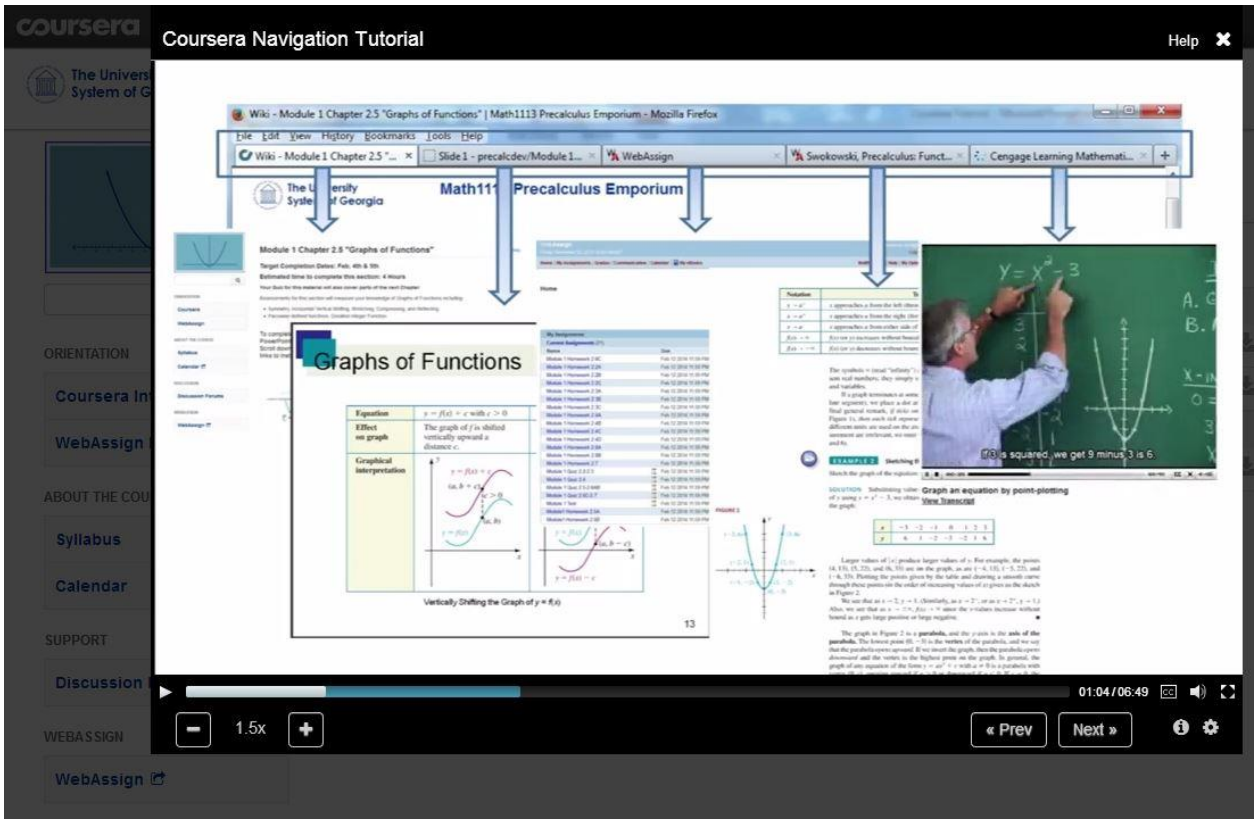
Printable Course Calendar - Complete

Quick Reference - Important Dates

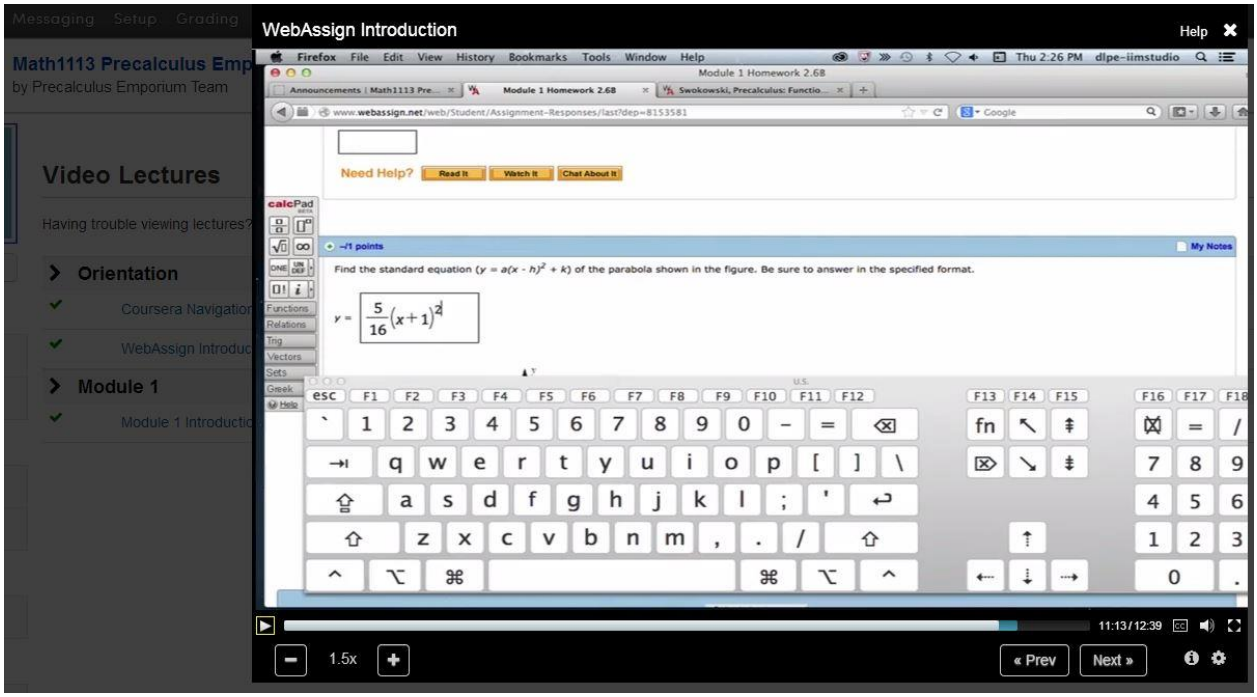
- January 13 (Monday): Start of Class
- January 20 (Monday): MLK Holiday - Feel free to get some work done...
- February 12 (Wednesday): All Module 1 Assignments and Quizzes Due Before Midnight
- February 13-14 (Thursday - Friday): Module 1 Test **(NOTE - TESTS AND EXAMS ARE ONLY AVAILABLE FOR 2 DAYS)**
- February 25 (Tuesday): All Module 2 Assignments and Quizzes Due Before Midnight
- February 26-27 (Wednesday - Thursday): Module 2 Test
- February 27-28 (Thursday - Friday): MIDTERM EXAM **(Note - Your Module 2 and Midterm Exams are back to back, with one day of overlap)**
- March 3 (Monday): Start of MGSC Spring Break (not observed - see note)
- March 10 (Monday): Start of UGA & GPC Spring Break (not observed - see note)
- March 17 (Monday): Start of GSU & VSU Spring Break (not observed - see note)
- March 30 (Sunday): All Module 3 Assignments and Quizzes Due Before Midnight
- March 31 - April 1 (Monday - Tuesday): Module 3 Test
- April 23 (Wenesday): All Module 4 Assignments and Quizzes Due Before Midnight
- April 24-25 (Thursday - Friday): Module 4 Test
- May 1-2 (Thursday - Friday): Final Exam

WebAssign.

Student Views 4

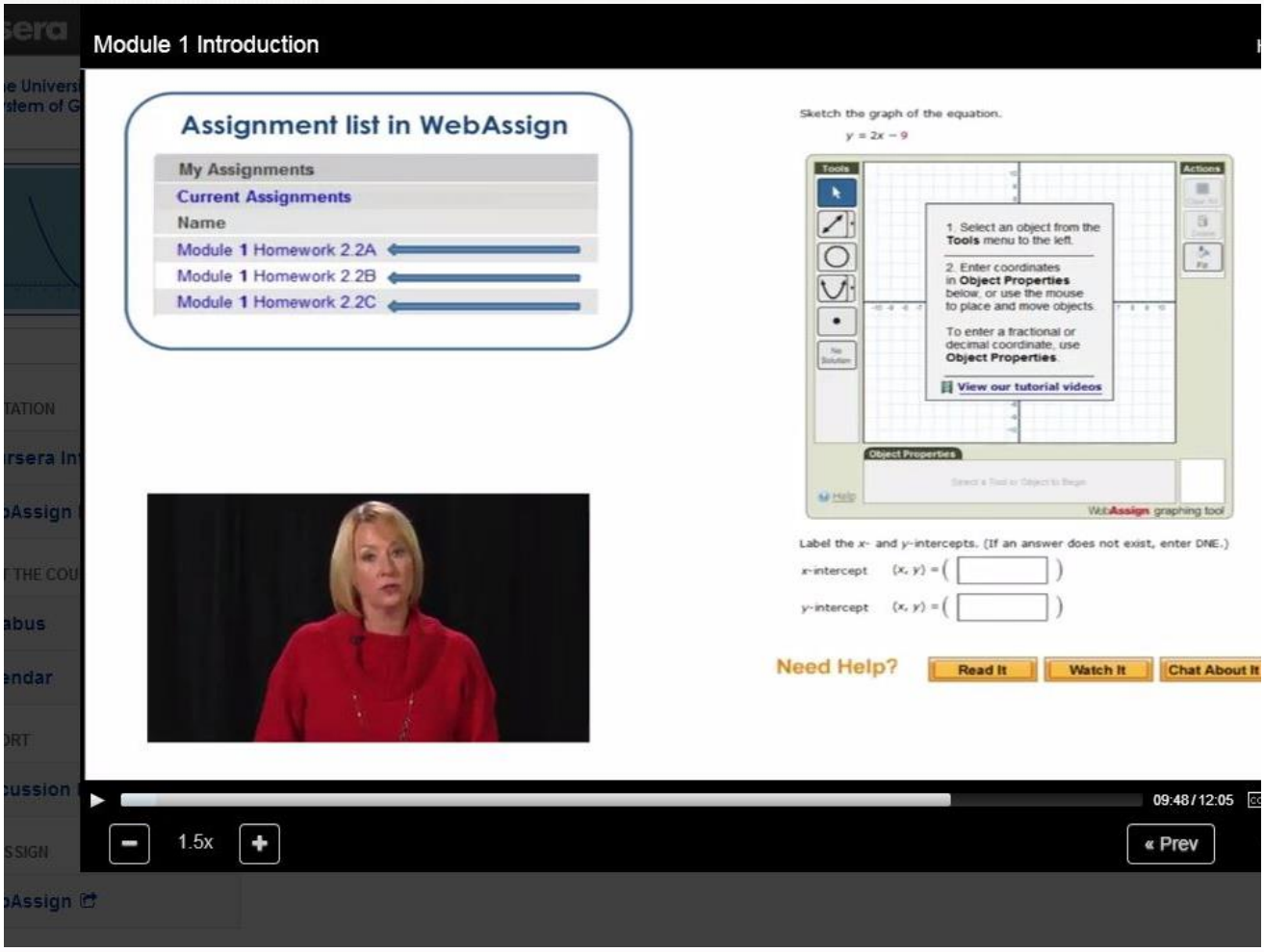


Student Views 5

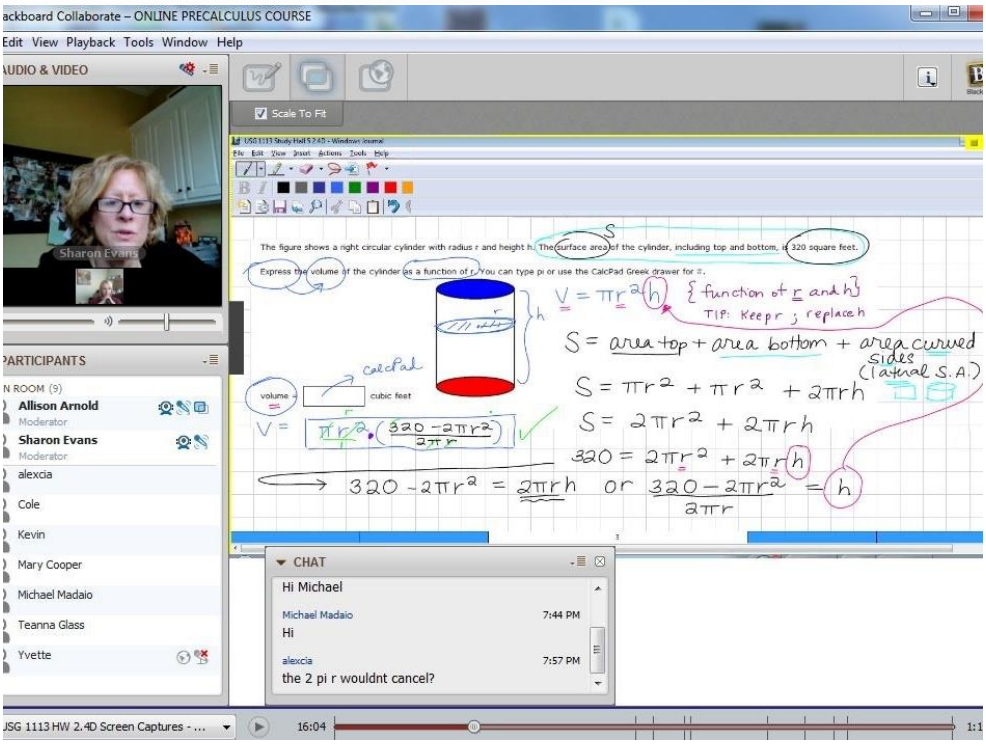


WebAssign

Student Views 6



Student Views 7

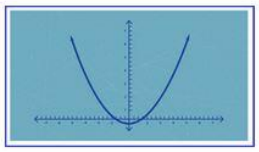


"Study Hall" in Collaborate

Student Views 8

The University System of Georgia

Math1113 Precalculus Emporium
by Precalculus Emporium Team



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MODULE 1
- Introduction
- Chapter 2.2
- Chapter 2.3

Module 1 Chapter 2.5 "Graphs of Functions"

Help

Target Completion Dates: Feb. 4th & 5th

Estimated time to complete this section: 4 Hours

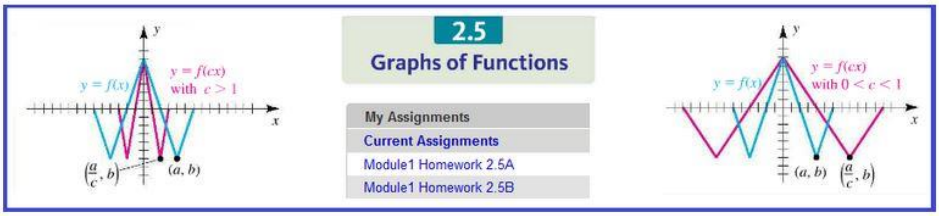
During this lesson you will be learning about **Graphs of Functions,** including:

- Symmetry, Horizontal/ Vertical Shifting, Stretching, Compressing, and Reflecting
- Piecewise-defined functions, Greatest integer Function
- Complete measurable learning objectives can be found **HERE.** They are also linked below.

To complete this lesson you need to do the following:

- Read pages 136-146 in your eBook
- Review the instructional materials embedded in the text. **Videos** are found by clicking the videocamera buttons. **Tutorials** are linked to the Pi symbol buttons.
- Complete **two assignments** in WebAssign
- Printable PowerPoint files, linked below, are provided as reference tools. They cover information found in the text.
- To keep track of your progress, print the **Lesson Assignment Sheet.** (It is also linked below.) There is space provided to mark things as complete.

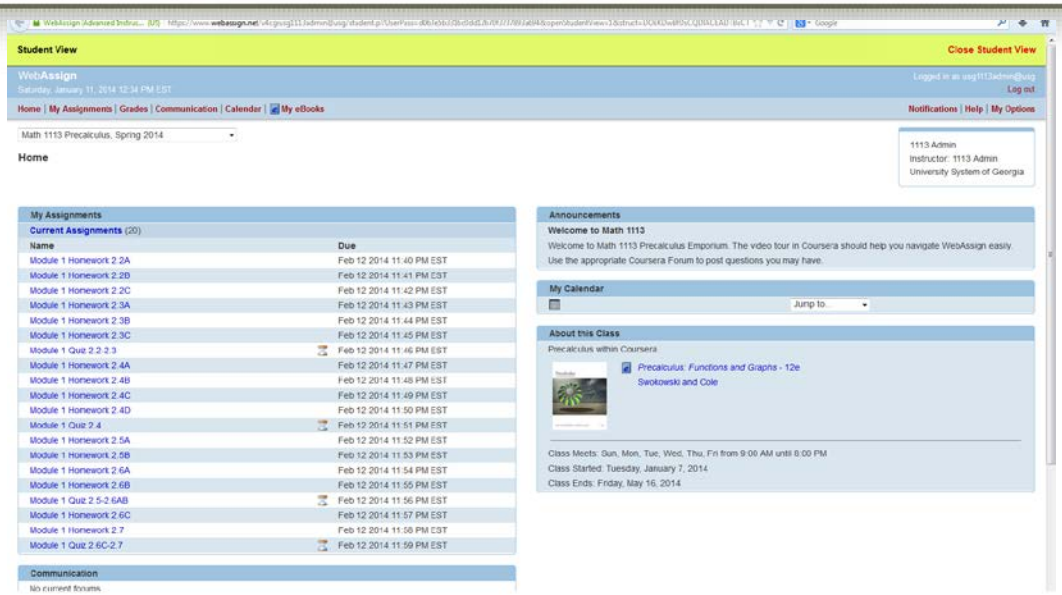
Image title: WebAssign Screenshots (Chapter 2.5)



You will be ready to complete assignment **2.5A** after:

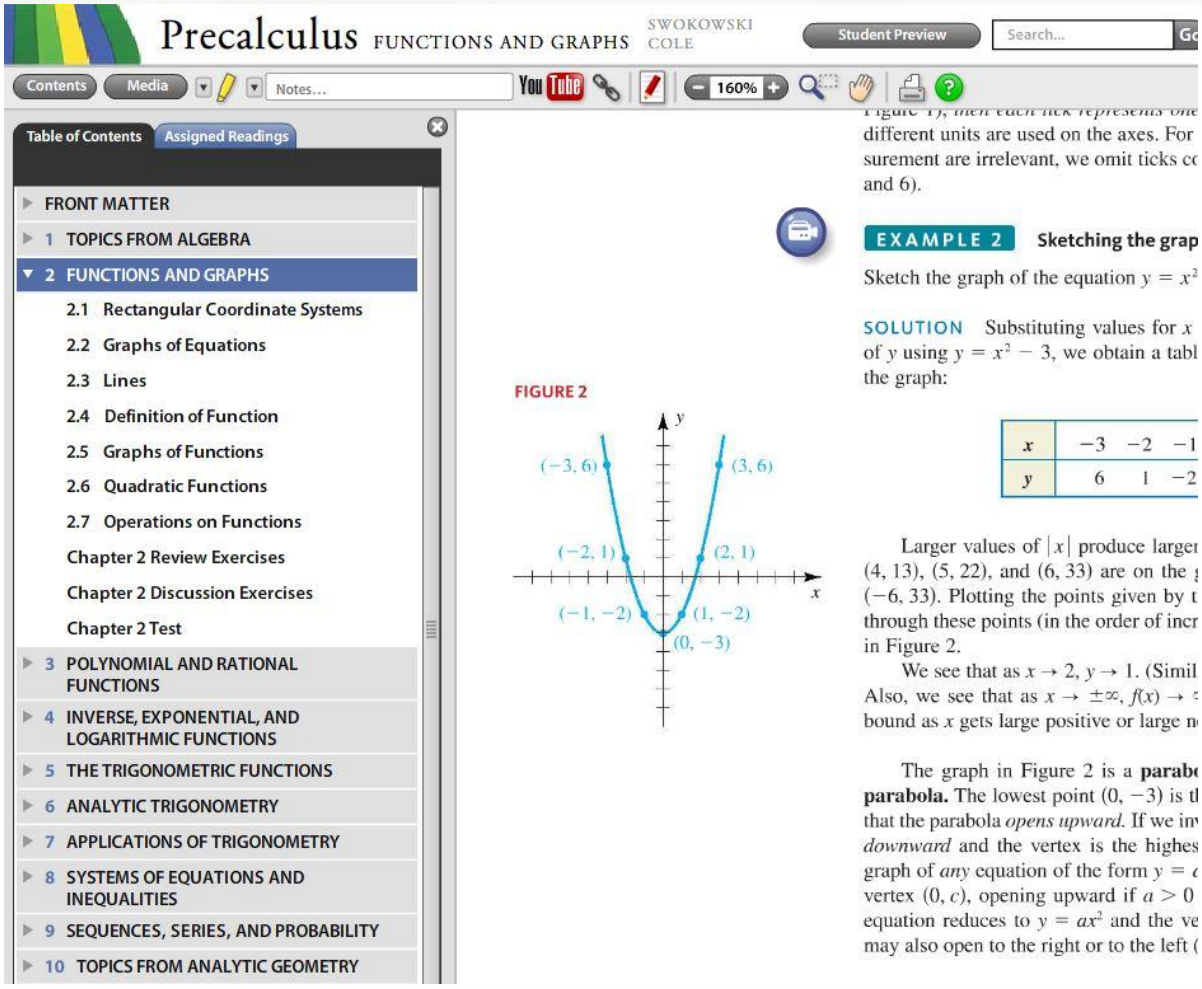
WebAssign.

Student Views 9



WebAssign.

Student Views 10

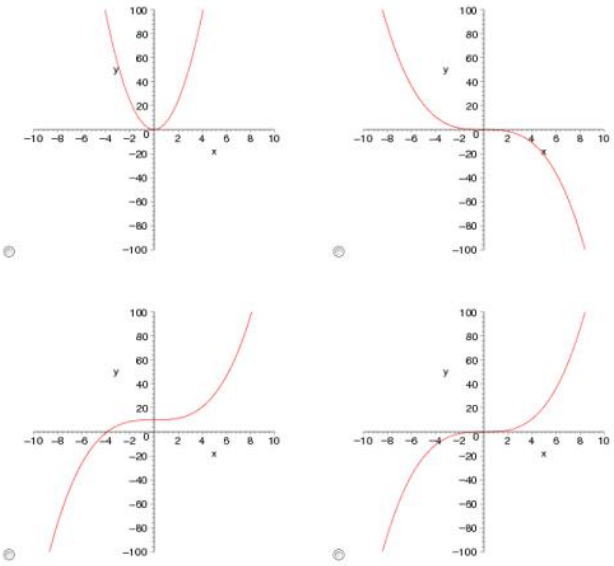


Student Views 11

Textbook provided question with help icons

Sketch the graph of the equation.

$y = \frac{1}{6}x^3$



Label the x- and y-intercepts. (If an answer does not exist, enter DNE.)

x-intercept $(x, y) = ($ $)$

y-intercept $(x, y) = ($ $)$

Need Help? Read It | Watch It | Chat About It

WebAssign

Student Views 12

Homegrown question with calcpad

Many now have help button too.

Assume that the Earth is a sphere of radius 4000 miles, and longitude lines are circles with center located at the center of the Earth. If the latitude reading of Athens Georgia is 34.0 ° N, how far north of the equator is Athens? (Enter an exact expression or one correct to 3 decimal places.) [ ] miles WatchIt

WebAssign.

Student Views 13

Responses - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.webassign.net/v4cgilisat@uga/faculty.pl?z=20100304183420lisat@uga741761031

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Responses

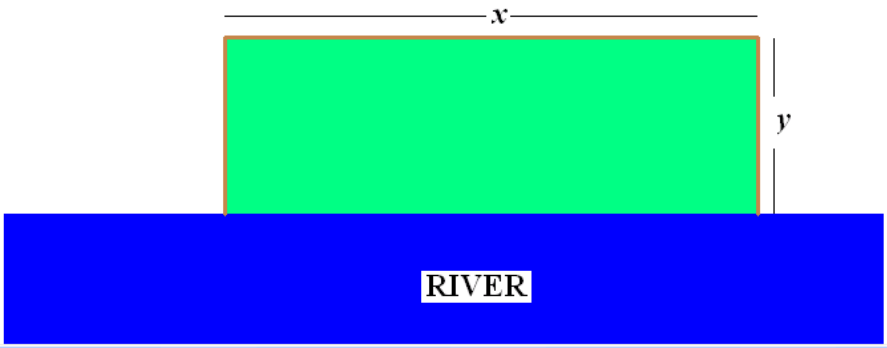
Farmer Brown has 850 yards of fencing with which to build a rectangular corral. He builds a new pen that uses the river as one side, so he only has to fence the other 3 sides (see figure below). Answer the following:

a) Write the area of the corral as a function of x

$A(x) =$ $x\left(\sqrt{850-x}\right)$ ✗ $x \cdot \frac{850-x}{2}$

b) Determine the maximum area enclosed by the corral. (Decimal approximations are marked incorrect.)

Maximum area = $2x\left(\sqrt{850-x}\right)$ ✗ $\frac{722500}{8}$ square yards



Done

start Inbox ... Respo... talks ICTC... Micro... 100% 1:35 PM

WebAssign

Testing Security: Midterm and Final Exam

- Students reserve a time at their campus (some have fee) or register with ProctorU.
- Campus proctors: mostly undergraduates
- Due to some campus IT setups and remote (personal laptop) testing, no IP protection
- Browsers locked during test (work in progress, but great at UGA and VSU)
- Short test window and hidden passwords given only to proctors
- We had to quell chat about exam

What We Know About the Course Now 1

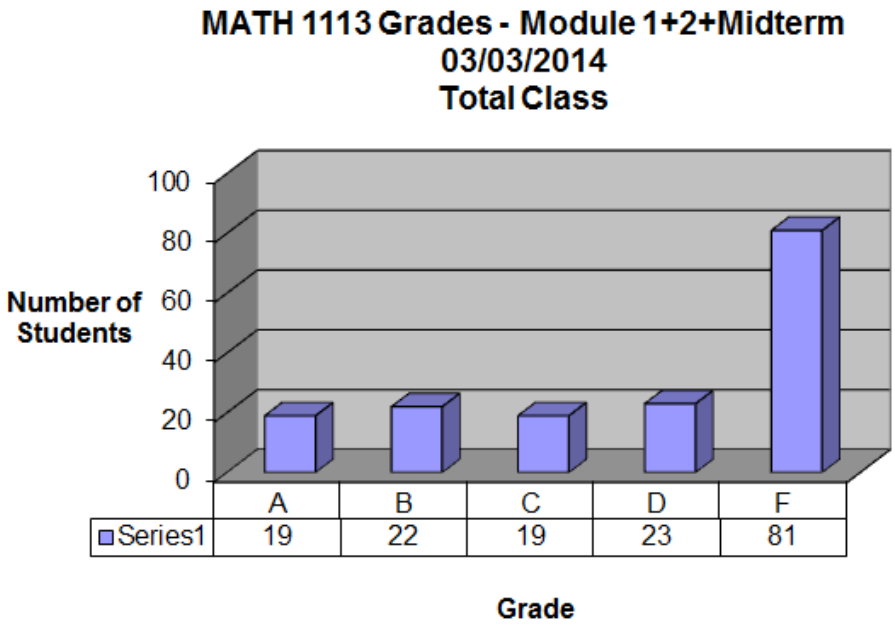
- The course officially opened Mon Jan 13
- Aim was 300 students, 250 to start that ended up 212
- Immediate goal: get students to feel they have joined a class community
- 50% of the coursework is unsupervised, so at onset we first needed to monitor and encourage progress

What We Know About the Course Now 2

- Drop Date is March 20, currently 136 (164 in next graph)
- We had timed quizzes and module tests, but open book/notes nature meant we underestimated student time needs (they prepare as they are testing)
- Spectacularly underprepared students at the midterm. Scores ranged from 8 to 100, and 30 students did not participate

What We Know About the Course Now 3

- Midterm mean/median: 61.5759/63.825 and 122 took it, 13 scored an A (89.5 or better with 2 perfect exams)
- Midterm grades



What We Know So Far (plusses)

- A fair, flexible opportunity for talented, motivated students
- On day 1, several students completed several homework assignments
- There is a place for GTAs in such a format
- WebAssign and Coursera are now integrated, and learning a lot in the process

What We Know So Far (Student Feedback)

- In initial survey after module 1, students saw no value in book, homework, quizzes but liked the powerpoints
- In survey after module 2, students still hated the book, liked ppts, hw and quiz; and loved the online office hours
- A student comment after the midterm said the test was fair and similar to work she had done, and caught her on the stuff she hadn't quite mastered

What We Know So Far (minuses)

- Coursera grading engine isn't up to mathematics (and physics, we hear)
- Coursera surprised us by opening the course to students early
- Coursera gradebook couldn't synchronize with WebAssign
- Coursera couldn't section, so hard to track students by campus orientation
- Per previous, students can't follow registration instructions (course, midterm)

What We Know So Far (minuses)

- The bureaucratic red tape to span multiple institutions is daunting: course approval, accreditation approval, registration calendar, ABC vs +/- grades, academic integrity distinctions; delayed contracts with ProctorU, etc.
- Ditto, especially low vision requirements for ebook and WebAssign
- ProctorU implementation bumpy the first time

What We Know So Far (minuses)

- Too many cooks in the design phase really set the timetable back
- Ditto during implementation: weekly “1 hr” phone meetings that span 1.5 hrs and long email threads to make decisions
- Need to create new midterm/final each term
- The cost is WAY higher than USG folks hoped for, both in $ and labor

Plans for Future

- University System of Georgia already has committed to Fall/Spring 2014-15 on the same 5 campuses (perhaps more)
- ADA low vision implementation ready in Fall
- Summer retooling: fix up some shortcomings in assignments, more "watchits" for exercises and videos for more difficult sections, perhaps more staggered due dates to keep students on task
- "Business Plan" discussions
- USG now interested in Math Modeling

Why Did We Do This?

- University System of Georgia already has "Georgia on my Line" including Precalculus
- USG has a (new) contract with Coursera
- USG was concerned with completion rate of Precalculus, or….
- We (UGA math) signed on to maintain some product integrity, but the course feels easier to me, the assessor ("vanilla" tests, like mass exams)

Personnel

- Associate Dean to write checks and talk to deans at other campuses
- Project Manager with online learning and red tape expertise (super gal!!!!!!)
- Design Team: 5 instructors, WebAssign guru (LT), 2 Coursera gurus, ADA watchdogs, project assessor, instructional designer (super guy!!!!!)
- Instructional Team: 6 faculty, WA guru, instructional designer, 2 TAs (just 2,1,1,2?)

Feel Free to Contact Me With Questions

Lisa Townsley

townsley@math.uga.edu

The University of Georgia